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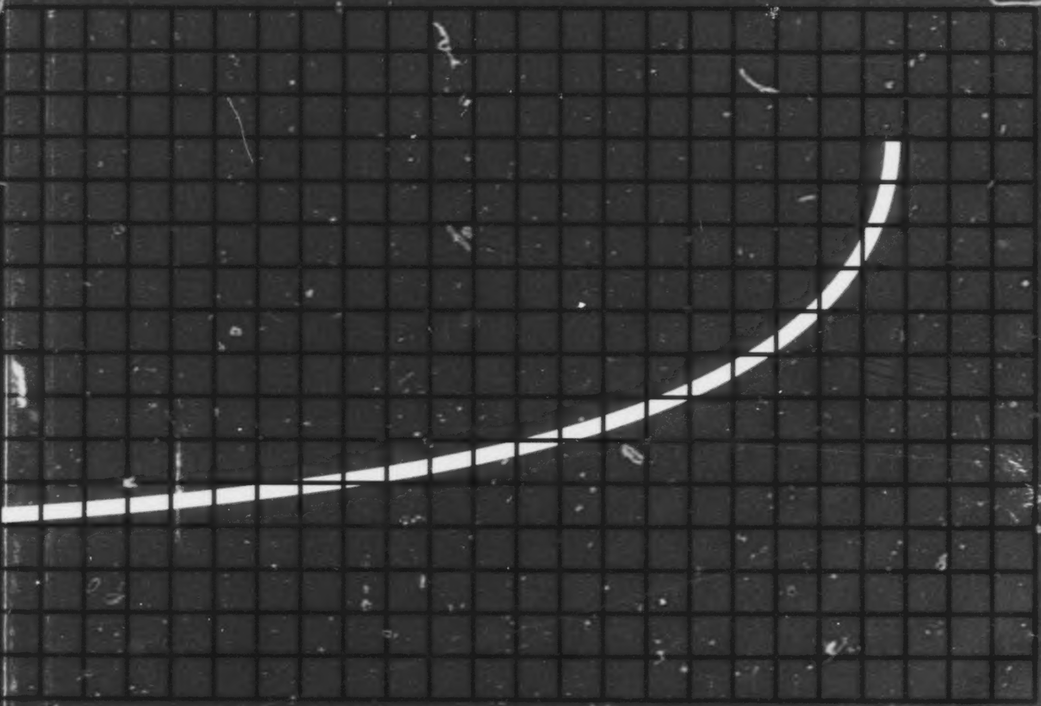
1989
EDUCATION INDICATORS



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1989
Education Indicators

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"The purpose of the Center shall be to collect, and analyze, and disseminate statistics and other data related to education in the United States and in other nations."—Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e-1).

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Commissioner's Statement

The National Center for Education Statistics (NCES) gathers and publishes information on the status and progress of education in the United States. The Federal authorization (enacted in 1974 but with antecedents to 1867) for these activities states that the Center will "collect, collate, and from time to time, report full and complete statistics on the condition of education in the United States" (section 406 (b) (1) of the General Education Provisions Act). This legislation mandated an annual statistical report from the Secretary of Education on the subject. In 1988, the Hawkins-Stafford Elementary/Secondary School Improvement Amendments (Public Law 100-297, amending section 406 (d)(1)(C) of the General Education Provisions Act) changed that reporting responsibility to be that of the Commissioner of Education Statistics.

This year, as in 1988, the "indicators"—key data that measure the health of education, monitor important developments, and show trends in major aspects of education—are published in three volumes. *The Condition of Education* report encompasses the first two volumes, the first addressing elementary and secondary education and the second, postsecondary education. The third volume, *1989 Education Indicators*, includes the text, tables, and graphs from the first two volumes, plus the technical supporting data, supplemental information, and data sources.

NCES began presenting statistical information as education indicators with the 1986 edition of *The Condition of Education*. Since then, the indicators have been developed through studies carried out by the Center as well as from surveys conducted elsewhere, both within and outside the Federal Government. Although indicators may be simple statistics, more often they are analyses—examining relationships; showing changes over time; comparing or contrasting subpopulations, regions, or States; or studying characteristics of students from different backgrounds. Data used for these indicators are the most valid and representative education statistics available in America today for the subjects and issues with which they deal.

Not all possible indicators are published in a given edition. No more than a total of 40-50 indicators is presented in each year's report. By contrast, the Center's other major annual compendium, the *Digest of Education Statistics*, includes more than 300 statistical tables, plus figures and appendices. The indicators, therefore, represent a consensus of professional judgment on the most significant national measures of the condition and progress of education at this time, but tempered, necessarily, by the availability of current and valid information. The indicators reflect a basic core that can be repeated with updated information every year and supplemented by a more limited set of indicators based on infrequent or one-time studies.

Those indicators in the elementary and secondary education volume derive more from comprehensive data collected over time, while those in the postsecondary volume are based on more recently developed data, reflecting a narrower array of topics described by currently available timetrends and nationally representative statistics.

For elementary and secondary education, new indicators include:

- a science indicator from the most recently completed analysis of the National Assessment of Educational Progress;
- indicators on international comparisons of mathematics and science proficiency;
- an indicator on the racial and ethnic composition of elementary/secondary education, based on data from the Office for Civil Rights; and
- an indicator on the number of credits required by States for graduation from high school from new data of the Council of Chief State School Officers.

The expanded set of postsecondary indicators presented in 1988 is continued this year with selected additions. Indicators have been added on degrees awarded by colleges and universities according to the fields of study and gender of students. The National Science Foundation has provided new data on research and development spending by universities and trends in new doctorate recipients' entering university employment.

The concept of education indicators has gained the attention of the U.S. Congress, national organizations, States, and localities. To assist the Center in conceptualizing and developing a set of education indicators most useful to policymakers and researchers, Congress recently mandated that NCES convene a special study panel of experts to "make recommendations concerning the determination of education indicators for study and report" (P.L. 100-297). The Commissioner is to submit the report of the panel to Congress upon completion of its work. NCES expects to revise *The Condition of Education* to reflect those recommendations. The panel will meet over the coming year. Its conclusions, however, will not greatly influence the 1990 edition of *The Condition of Education*, but its work could result in major changes beginning in 1991.

In developing indicators, the Center has participated in a widening national discussion about the types of measures that are useful in monitoring the progress of education. A number of local education agencies and States, such as California and Connecticut, are monitoring their reform agendas through education indicators. At the national level, the Council of Chief State School Officers seeks to have consistent reporting by the States on a number of indicators that it has identified.

In future editions, the utility of this report should increase as more diverse, high quality data become available, especially as new time series can be constructed. Elementary and secondary education data will be enhanced by revisions in the basic data collected about public schools in the Common Core of Data survey and by the results from the Schools and Staffing Survey (SASS), which covers both public and private schools. Some data from the first SASS are expected to be analyzed in time for the 1990 edition.

Data collection from more postsecondary institutions than the traditional, accredited 2- and 4-year colleges and universities has already begun. This expanded system, called the Integrated Postsecondary Education Data System (IPEDS), also includes information from nonaccredited institutions whether they are public or private, 4-year, 2-year, or less-than-2-year. Information from this broader group of institutions will provide a much clearer picture of what is happening in the full scope of postsecondary education.

Finally, the format of *The Condition of Education* is designed to present statistical information in an accessible manner for a general audience. As in the 1988 edition, the one-page narrative style is followed by an illustrative chart. The tables supporting each narrative and chart are placed in an appendix.

I hope you find the material helpful and invite you to send us comments on how to make future editions even more useful.

Emerson J. Elliott
Acting Commissioner of
Education Statistics

Acknowledgments

The Condition of Education was prepared in the National Center for Education Statistics (NCES), Office of Educational Research and Improvement (OERI), by the Indicators and Multilevel Studies Branch of the Crosscutting Education Statistics and Analysis Division under the general supervision of Jeanne E. Griffith, Acting Division Director.

Curtis O. Baker, Acting Chief of the Indicators and Multilevel Studies Branch, coordinated the development and production of this edition after taking over from Carlyle Maw, who is now in the NCES Office of the Chief Statistician. Laurence Ogle, Gayle Rogers, and Mark Schwartz of the branch contributed indicators, both new and updated. Mary Frase was consulted for technical guidance and provided a challenge to improve the readability of the indicators. Brenda Wade helped type the manuscript and assemble the final document.

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Indicators of Elementary and Secondary Education

Overview

Introduction

Since the early 1980s, the country has become increasingly aware of the range of critical issues facing its schools. These issues are nationwide and include problems of declining academic performance, concerns about teacher qualifications and availability, and use of drugs and violence in the schools. The issues have serious implications, not only for effective operation of the schools, but for the future of individual workers, U.S. economic competitiveness, and ultimately for the structure and cohesiveness of American society.

The Nation has responded to this situation by renewing its commitment to excellence in education. The thrust of this commitment constitutes a major reform movement, involving government at all levels, school officials and teachers, institutions of higher education, as well as interested parents and citizens. Reforms include expanded academic programs for students, improved safety programs for the schools, increased requirements for high school graduation, and new approaches to attract better qualified individuals to the teaching profession.

The indicators presented in this volume touch on many issues in elementary and secondary education. They are discussed below under five major headings: (1) school population and support; (2) the teaching profession; (3) school environment; (4) student academic performance; and (5) transitions.

School Population and Support

Changes in the size and characteristics of the school population create a context for demands that will be placed on educational institutions. While private school enrollment has changed little during the 1980s (*Indicator 1:20*), enrollment in the public schools has begun to rise slightly at the elementary level after declines in the 1970s. Secondary enrollment is expected to decline somewhat until about 1990 and then begin to increase again. However, neither level of enrollment is expected to reach the levels of the early 1970s before the end of the 1990s (*Indicator 1:21*). The proportion of minority students in the public schools rose to almost 30 percent in 1986, up from 24 percent in 1976 (*Indicator 1:22*). At the same time that minority enrollment has increased, special education enrollment has also increased (*Indicator 1:23*).

While total enrollment has been stable or declining, the balance among sources of financial support for public schools has been changing. Until 1979, local jurisdictions provided the largest share of funds to operate public schools. Since 1979, States have provided the most funds, reaching 50 percent in 1987. Federal funds that accounted for almost 10 percent of this support in 1980 declined to 6 percent by 1987 (*Indicator 1:13*).

The total level of effort (including Federal, State, and local) to provide resources for public schools—a measure linking revenues per pupil to per capita income—has shown a long-term increase, although it has leveled off recently. The index of this effort increased by more than 70 percent from 1950 to 1986 and has remained at the same level since then (*Indicator 1:15*). This increasing effort to pay for education has contributed to a continuing increase in current expenditure per pupil, which reached $3,977 in 1986–87 (*Indicator 1:14*). Closely associated with the increasing per pupil expenditure has been a reduction in the ratio of pupils per teacher. Since 1959–60, pupil/teacher ratios have declined by 32 percent at the elementary school level and 29 percent at the secondary level (*Indicator 1:18*).

The Teaching Profession

Teachers are vital to an educational system. However, since 1959–60, the proportion of classroom teachers has declined from 65 percent to 53 percent of the total staff (*Indicator 1:16*). There is an expected demand for increasing numbers of new secondary school teachers through 1995 (*Indicator 1:19*). At the same time, States are imposing greater requirements of the teachers who may be hired by local school districts. As of 1988, 46 States require prospective teachers to pass some form of test prior to certification, and many States require a test at more than one of the following points: admission to teacher education, exit from teacher education, or just prior to initial certification (*Indicator 1:30*). Increasing teacher salaries may improve recruiting efforts. Teacher salaries are now 76 percent higher than they were in 1980, in current dollar terms. In constant dollars, in 1988, they exceeded the previous high average that was in 1973 (*Indicator 1:17*).

School Environment

Adequate resources and good teachers are essential to good schools, but they are not sufficient. A safe, undisturbed setting with students in it who are ready to learn is also necessary. Students in schools with numerous problems (such as student absenteeism, high teacher turnover, low standards for students, and vandalism) had lower reading scores than students in schools with fewer problems (*Indicator 1:26*). Disruptive behavior, one of the factors that can hinder learning, has increased over the past 5 years, according to teachers (*Indicator 1:24*), while drug and alcohol use has declined in recent years (*Indicator 1:25*). Teachers have identified two factors, outside of the schools' control, as major causes of students' difficulties in school: children's being left on their own after school and family poverty (*Indicator 1:28*). Despite the apparent concern about the school environment, the public's ratings of the public schools have not changed significantly in recent years (*Indicator 1:27*).

Student Academic Performance

The academic performance of students, as measured by standardized tests, shows that students cannot perform many ordinary tasks. Only a small portion of 17-year-olds perform at the highest proficiency levels. Where trend data are available, overall performance of U.S. students is not changing significantly. In fact, in comparison to students in other countries, U.S. students' performance is significantly lower in mathematics and science than that of students in most of the other countries tested (*Indicators 1:3* and *1:5*). While the gap between white and black and Hispanic student performance has been reduced, it remains significant. In the most fundamental area, reading, few students even in the 11th grade can defend their judgments and interpretations about what they read (*Indicator 1:1*). Similar deficiencies show up in mathematics and science, where performance has been low for more than 10 years and has improved very little (*Indicator 1:2* and *1:4*). In the areas of U.S. history and literature, results are mixed. While students are familiar with early American history and the Bible, they show little familiarity with either recent U.S. history or literature (*Indicator 1:6*).

Scores on the ACT and SAT have remained low, but appear to have stopped declining since the early 1980s (*Indicator 1:10*). Students from private schools, especially nonsectarian ones, outperform those from public schools (*Indicator 1:11*).

The proportion of high school graduates completing the amount of "new basics" recommended by the National Commission on Excellence in Education in 1983 increased from 13 percent to almost 30 percent between 1982 and 1987 (*Indicator 1:8*). Only in requiring 4 years of English do more than 50 percent of the States require as many credits for graduation as recommended by the National Commission on Excellence in Education. However, a total of 19 States now require the passing of a competency test for a high school diploma (*Indicator 1:29*).

Transitions

The percentage of 18- and 19-year-olds who have completed high school seems to have stabilized at around 75 percent (*Indicator 1:9*). The attainment of a high school diploma still has a positive economic impact. Unemployment rates for high school graduates (aged 20–24) are significantly lower than for high school dropouts. However, the unemployment rate for black high school graduates in this age group (20–24) continues to exceed that of white and Hispanic dropouts (*Indicator 1:12*).

Conclusion

The school systems throughout the Nation face the formidable challenges of improving students' performance and coping with the changing social and economic environment. Current student performance may be insufficient to meet the demands that will be placed on them as they move to higher levels of schooling or into the workplace. Performance levels are changing very slowly despite increases in graduation requirements, relatively stable enrollments, substantial increases in teacher salaries, and the continued willingness of the public to support its schools.

The social and economic settings also confront schools with considerable problems. Poverty of students' families and drug and alcohol abuse continue to plague schools, but are outside of schools' abilities to control. In the near future, enrollment increases will raise the overall demand for new secondary teachers. The student body will become increasingly minority, and a substantial portion of that student body will not be native English-speaking.

Recent educational reforms have been instituted in response to some of these problems. The impact of these changes does not yet appear in national data. Taken together, these indicators point to the 1990s as a time of major testing for schools as demands intensify for a better educated work force that will enable U.S. industry to face increasing competition from abroad.

A. Outcomes

A. Outcomes: Student Performance

Indicator 1:1 Reading performance in grades 3, 7, and 11

- **Average reading proficiency continues to be lower for black and Hispanic students than for white students at all grade levels assessed.**
- **Students at all grade levels had particular difficulty with tasks that required them to elaborate upon or defend their judgments and interpretations about what they had read.**

Reading skills are considered basic to the education process. So when some students lag in their reading achievement, they may find it hard to participate effectively in an economy requiring increasingly sophisticated job skills.

The National Assessment for Educational Progress (NAEP)[*] in 1986 tested the reading performance of various groups in grades 3, 7, and 11 of public and private schools and found it to be uneven. Specifically, black and Hispanic students performed at levels below those of white students. NAEP also found that 11th graders in an academic curriculum had higher reading scores than those in general or vocational programs, and that black and Hispanic students were less likely to be in academic programs than white students.

The study also assessed students' ability to read, think, and write. Results indicated that while the Nation's students had the skills to derive a surface understanding of what they had read, they had difficulty when asked to defend or elaborate upon this surface understanding. NAEP evaluated responses according to their complexity. For example, about 80 percent of the third graders wrote "inadequate" or "minimal" responses to a story task, and only 18 percent produced a "satisfactory" response. Although the 11th graders performed with greater success, 36 percent wrote "inadequate" or "minimal" responses, and 22 percent wrote "elaborated" responses.

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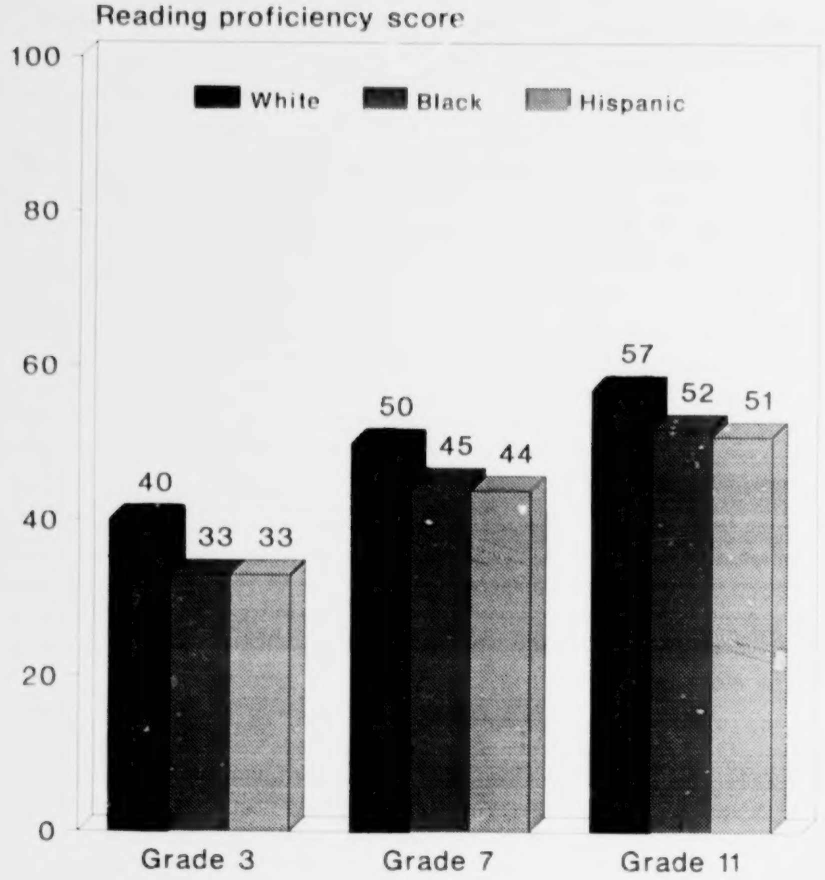
[*] NAEP is a congressionally mandated project that has assessed reading achievement five times, most recently in the 1985-86 school year. Because some new procedures were introduced in the 1985-86 assessment, the 1985-86 results were not comparable to those of earlier assessments. Therefore, trend information is not available. With the 1988 assessment, adjustments will be made to the 1985-86 data to allow for comparisons with previous NAEP reading tests.

SOURCE: National Assessment of Educational Progress, *Who Reads Best? Factors Related to Reading Achievement in Grades 3, 7, and 11*, 1988.

Chart 1:1 **Average reading proficiency, by race and ethnicity: 1986**



NOTE: The range of the reading proficiency scale was from 0 to 100. The average scores by grade were 38.1 for grade 3, 48.9 for grade 7, and 56.1 for grade 11.

SOURCE: National Assessment of Educational Progress, 1988.

Indicator 1:2 Trends in mathematics performance of 9-, 13-, and 17-year-olds

- **In 1986, mathematics proficiency of 17-year-olds was no higher than in 1973, but was slightly higher than in 1982.**
- **Between 1978 and 1986, 9- and 13-year-olds improved their mathematics performance slightly.**
- **While mathematics performance has improved, it remains low. Improvements occurred at the lower levels of the mathematics proficiency scale: even at age 17, 49 percent of students were unable to perform moderately complex procedures.**

Poor performance in mathemathics has been a national concern since the late 1960s, when the National Assessment of Educational Progress (NAEP) began periodically assessing students' knowledge, skills, and attitudes. During a time when science and technology—which depend on mathematics—have played an increasingly important role in the Nation's economy and national security, mathematics scores have remained low.

Results from the 1986 NAEP Mathematics Assessment show a slight upturn in the mathematics performance of 17-year-olds compared to 1982.[*] Between 1978 and 1986, some improvement occurred among 9- and 13-year-olds. At all three ages, the improvements occurred in lower-level skills involving routine computations and measurement problems but not in more complex procedures and analytical problem solving.

Average mathematics achievement remains low for all three age groups. Over 25 percent of 13-year-olds and 4 percent of 17-year-olds were unable to perform at the 250 level of the mathematics scale that involves the four basic operations (addition, subtraction, multiplication, and division), one-step problem solving, and comparing information from graphs and charts. Only 6 percent of 17-year-olds scored at the level involving multistep problem solving and algebra (350 scale level).

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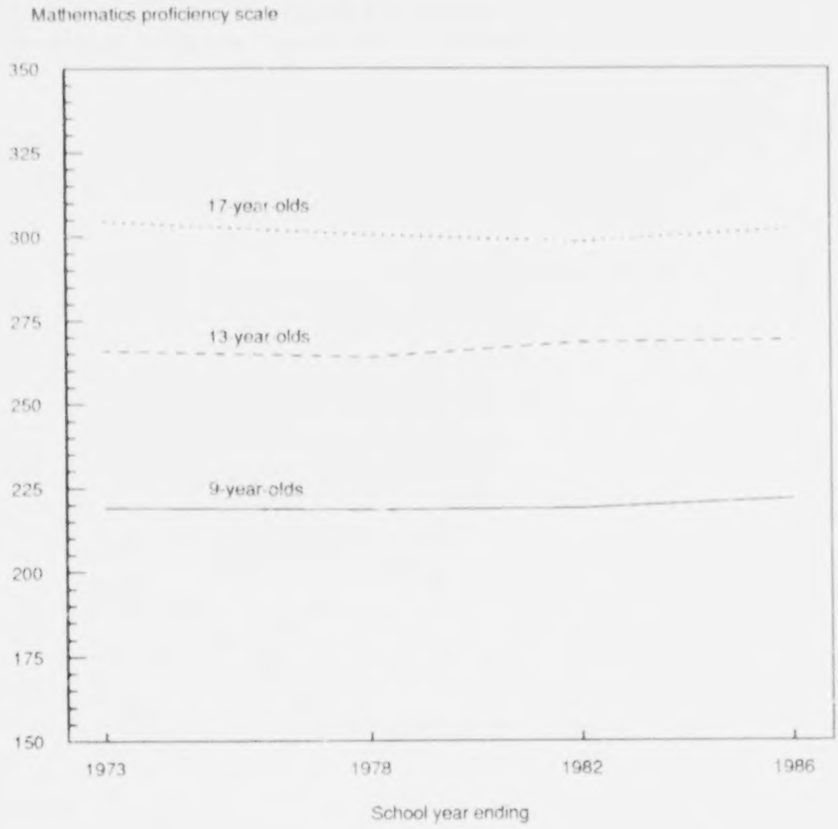
[*] NAEP has assessed mathematics achievement four times—in 1973, 1978, 1982, and 1986.

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card: Are We Measuring Up?*, 1988.

Chart 1:2 Trends in average mathematics proficiency



NOTE: Mathematics Proficiency Scale
Level 150 = Simple arithmetic facts
Level 200 = Beginning skills and understanding
Level 250 = Basic operations and beginning problem solving
Level 300 = Moderately complex procedures and reasoning
Level 350 = Multistep problem solving and algebra.

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card: Are We Measuring Up?*, 1988.

Indicator 1:3 International comparisons of mathematics performance

- **In the first International Assessment of Educational Progress, 13-year-olds from the United States scored in the lowest group in mathematics proficiency.**

The mathematics abilities of students are important indicators of the results of schooling. In an increasingly technological world, mathematics skills of a nation's workers may be a crucial element of competitiveness. Workers with better mathematics skills may well be more productive workers.

In the first International Assessment of Educational Progress, 13-year-olds from the United States and 5 other countries (Canada, Ireland, Korea, the United Kingdom, and Spain) were assessed in a standardized fashion in mathematics proficiency. In mathematics, the results found four groups of students significantly different from one another. Students in the United States were in the lowest scoring group.

The mathematics proficiency of students in Korea was significantly higher than that of students in any of the other countries. At least one of the seven * different Canadian subgroups (in four provinces) was found in every proficiency group, except the top one. Spain, the United Kingdom, and the Republic of Ireland were in the third highest group.

The assessment was designed to examine abilities of students measured on a scale from 0 to 1000, with a mean of 500. At the 500 level on the scale, students could solve two-step mathematical problems. Students in the United States ranked very low in the percentages of 13-year-olds able to perform at this level. While 78 percent of Korean students could perform at this level, only 40 percent of those in the United States could do so.

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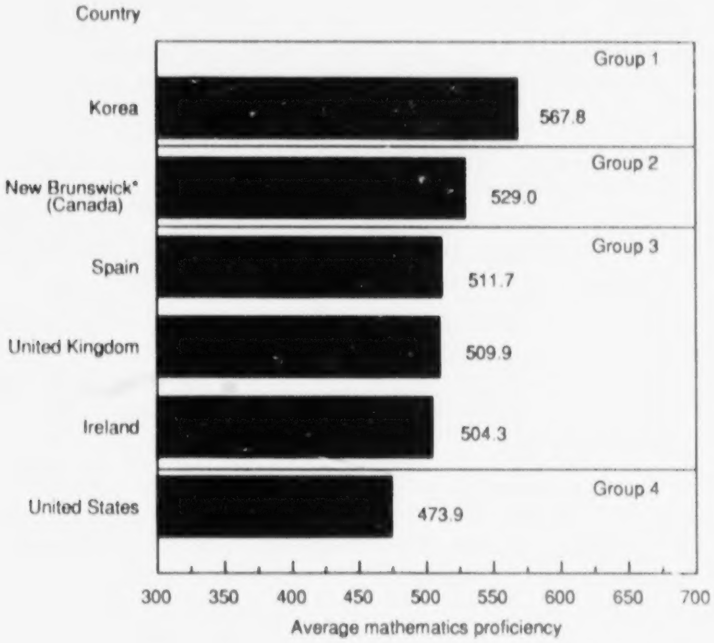
* Four groups were in schools whose language of instruction was English, and three were in schools whose language of instruction was French.

SOURCE: International Assessment of Educational Progress, *A World of Differences. An International Assessment of Mathematics and Science*, 1989.

Chart 1:3 Average mathematics proficiency of 13-year-old students in six countries: 1988



* New Brunswick (English) is the median group of seven groups assessed in four Canadian provinces.

NOTE: Differences in performance among the four groups shown are statistically significant at the 0.05 level; differences within groups are not statistically significant.

Skills characteristic of different levels on the mathematics scale:
Level 300 = Simple addition and subtraction
Level 400 = Basic operations to solve simple problems
Level 500 = Intermediate level skills to solve two-step problems
Level 600 = Measurement and geometry concepts to solve more complex problems
Level 700 = More advanced mathematical concepts.

SOURCE: International Assessment of Educational Progress, *A World of Differences, An International Assessment of Mathematics and Science*, 1989.

Indicator 1:4 Trends in science performance of 9-, 13-, and 17-year-olds

- **Between 1982 and 1986, 17-year-olds slightly improved their science performance.**
- **While science performance scores have risen, they remain low; most students, even at age 17, were unable to perform at the upper levels of the scale.**

Declining test scores in science have been an educational concern since the late 1960s when the National Assessment of Educational Progress (NAEP) began periodically assessing students' knowledge, skills, and attitudes. During this period, students' proficiency in science has remained low. Yet, scientific capability is considered vital to our national defense and economic competitiveness.

Results from the 1986 NAEP Science Assessment show an upturn in the average science performance of 17-year-old students when compared with 1982.* Among 9-year-olds, there was some significant improvement over 1977. In 1986, there was no improvement in performance at the highest level by any age group compared to the 1982 assessment.

Average science achievement scores for all three age groups remain low. The ability to apply scientific information, interpret data, and make inferences about outcomes of experimental procedures was exhibited by 28 percent of 9-year-olds, 53 percent of 13-year-olds, and 81 percent of 17-year-olds. However, only 8 percent of 17-year-olds could integrate specialized scientific information, infer relationships, and draw conclusions using knowledge from the physical sciences and applying principles of genetics.

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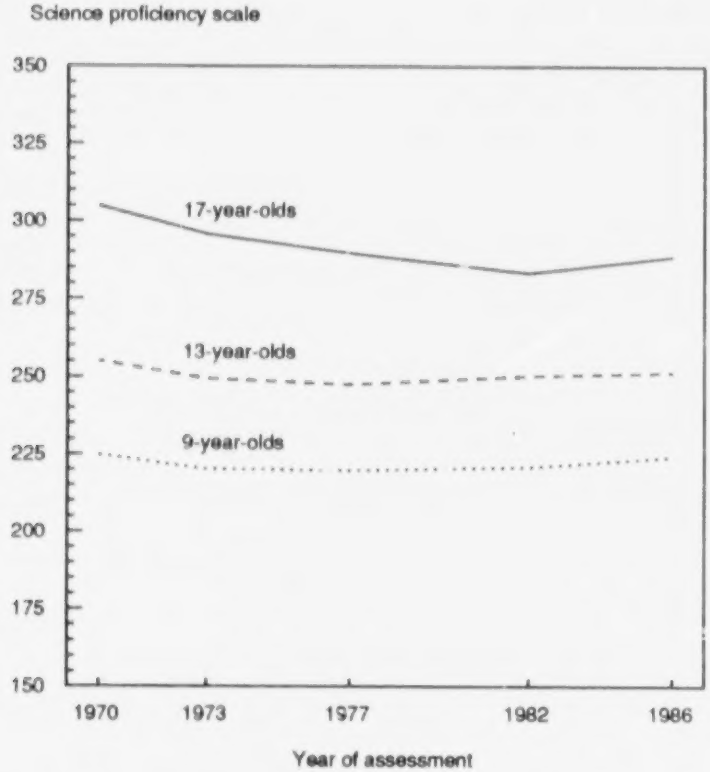
*NAEP has assessed science five times—1970, 1973, 1977, 1982, and 1986. "Results for the 1977, 1982, and 1986 assessments are based on a newly developed trend analysis of the data collected in those years, while the results for the earlier assessments * * * are extrapolated from previous analyses of NAEP data."

SOURCE: National Assessment of Educational Progress, *The Science Report Card, Elements of Risk and Recovery*, 1988.

Chart 1:4 Trends in average science proficiency of 9-, 13-, and 17-year-olds: Selected years 1970–1986



* While 9- and 13-year-olds were assessed in the spring of 1970, 17-year-olds were assessed in the spring of 1969.

NOTE: Science Proficiency Scale
- Level 150 = Knows everyday science facts
- Level 200 = Understands simple scientific principles
- Level 250 = Applies basic scientific information
- Level 300 = Analyzes scientific procedures and data
- Level 350 = Integrates specialized scientific information.

SOURCE: National Assessment of Educational Progress, *The Science Report Card, Elements of Risk and Recovery*, 1988.

Indicator 1:5 International comparisons of science performance

- **The science proficiency of U.S. students was well below the mean on the first International Assessment of Educational Progress.**

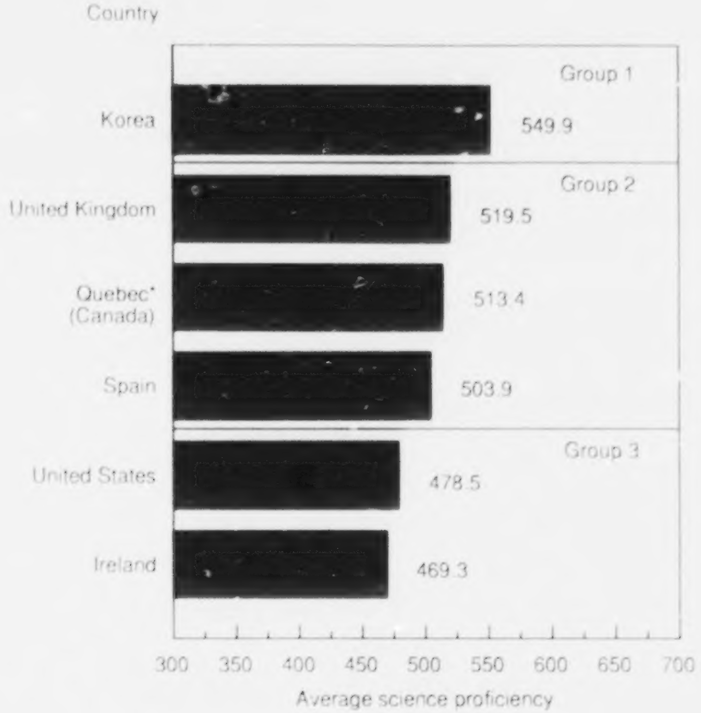
The United States is in an increasingly competitive international economic climate. In such a world, the scientific capabilities of U.S. workers may indicate how competitive the country might be in the future.

In the first International Assessment of Educational Progress, 13-year-olds from the United States and five other countries were assessed in a standardized fashion in science. Average proficiency levels fell into three groups, which were significantly different from one another. Students in the United States were in the lowest scoring group, well below the mean, along with Irish students and two groups of Canadian students.

Students in British Columbia and Korea performed significantly better than students from other countries and provinces. The middle group included students from the United Kingdom, Spain, and four Canadian groups. The assessment was designed to examine abilities of students measured on a scale from 0 to 1000, with a mean of 500. At the 500 level on the scale, students could use scientific procedures and analyze scientific data. Students in the United States ranked very low in the percentages of 13-year-olds able to perform at this level. While 72 percent of British Columbian students and 73 percent of Korean students could perform at this level, only 42 percent of U.S. students could do so. These results parallel the results of the international mathematics proficiency testing (see *Indicator 1:3*).

SOURCE: International Assessment of Educational Progress. *A World of Differences: An International Assessment of Mathematics and Science*, 1989.

Chart 1:5 Average science proficiency of 13-year-old students in six countries: 1988



* Quebec (French) is the median group of seven groups assessed in four Canadian provinces.

NOTE: Differences in performance among the three groups are statistically significant at the 0.05 level; differences within groups are not statistically significant.

Skills characteristic of different levels of proficiency on the science scales:

Level 300 = Knows everyday science facts
Level 400 = Understands and applies simple scientific principles
Level 500 = Uses scientific procedures and analyzes scientific data
Level 600 = Understands and applies scientific knowledge and principles
Level 700 = Integrates scientific information and experimental evidence

SOURCE: International Assessment of Educational Progress, *A World of Differences: An International Assessment of Mathematics and Science*, 1989.

Indicator 1:6 Knowledge of U.S. history and literature

- **In 1986, 80 percent or more of U.S. 11th graders had some knowledge of such aspects of history as pioneers in technology, colonial history, economic history, geography, World War II, slavery, and the Bill of Rights. Less than 30 percent correctly answered questions dealing with the approximate dates of historical events, recent history, and the women's movement.**
- **In literature, 80 percent or more of 11th graders could answer questions involving the Bible, Shakespeare, black literature, children's classics, and well-known American and English literature. Less than 30 percent identified the American and European authors of certain, mostly modern, literary works.**

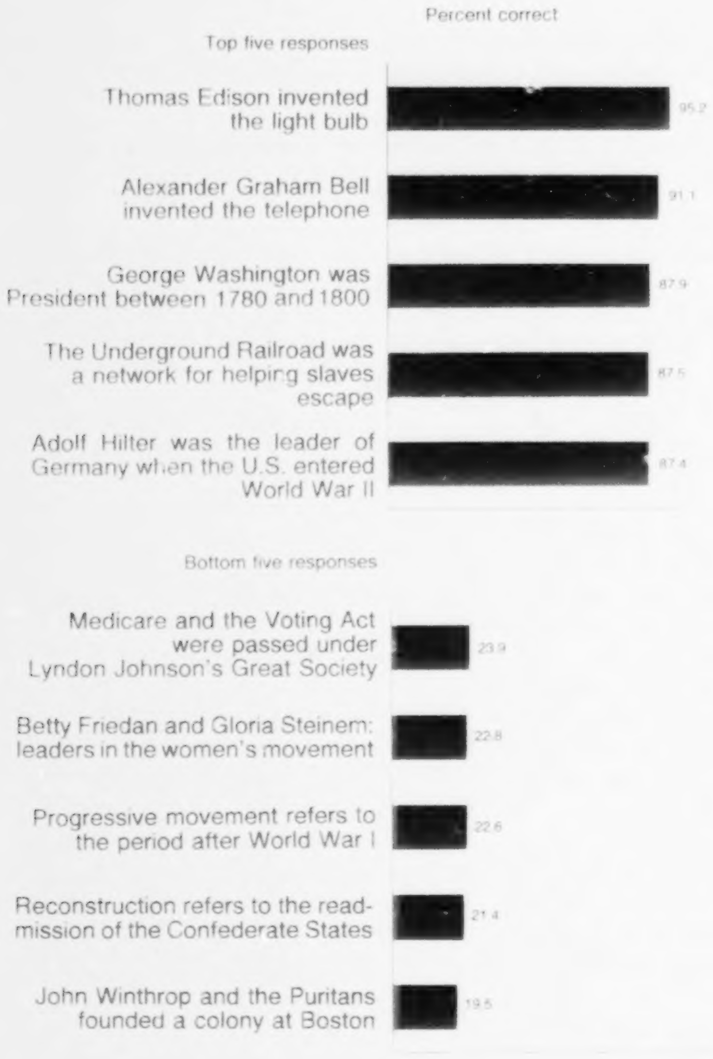
History and literature transmit and enrich our culture and serve as a basis for communication among literate people. The 1986 assessment in literature and U.S. history is the first major survey of students' knowledge of specific factual content.

While no absolute standards exist for judging what all students "should" know, the results on specific items included in the assessment provide a profile of student knowledge. In U.S. history, 19 out of 20 high school juniors knew that Thomas Edison invented the light bulb, that Alexander Graham Bell invented the telephone, and that George Washington was President between 1780 and 1800. However, fewer than one out of four knew when Abraham Lincoln was President or that Reconstruction refers to the readmission of the Confederate States to the Union. In literature, more than 9 out of 10 knew that Noah gathered pairs of creatures onto an ark, that Moses led the people out of Egypt and gave the 10 Commandments, and that Romeo and Juliet's love was hindered by their feuding families. But fewer than one out of four knew that Tennessee Williams wrote *A Street Car Named Desire* or that Alexis de Tocqueville wrote *Democracy in America*.

Students enrolled in an academic program performed significantly better than students in a general program or vocational/technical programs. This may be because students in academic programs spend more time in school studying history and literature; moreover, academic students may be more interested in these subjects or may have more innate ability.

SOURCE: National Assessment of Educational Progress, *Literature and U.S. History: The Instructional Experience and Factual Knowledge of High School Juniors*, 1987.

Chart 1:6 U.S. history item responses: 1986



* Excluding items relating to non-U.S. geography.

SOURCE: National Assessment of Educational Progress, 1988.

Indicator 1:7 Computer competence in grades 3, 7, and 11

- **In a 1985–86 assessment of computer competence, students in each of grades 3, 7, and 11 generally averaged less than 50 percent correct on the test items.**
- **Even students who had used a computer, had studied computers in school, or had one at home generally averaged under 50 percent correct.**

America's prominence in the world economy and its national security have become tied to computer-based technology. In 1983, the National Commission on Excellence in Education in *A Nation at Risk* brought increased attention to computer science instruction by recommending it be required of all high school students as part of the "Five New Basics" along with English, mathematics, science, and social studies.

Recognizing the emerging vital importance of computer skills for employment opportunities and productivity, administrators of the National Assessment of Educational Progress included an examination of computer competence in three grades in 1986. The students' competence was tested in three areas: (a) computer technology, (b) computer applications (e.g., word processing and graphics), and (c) computer programming. Students generally had difficulty answering questions on the assessment. On the average, 3rd graders could only answer about 3 out of 10 items correctly; 7th graders, 4 out of 10; and 11th graders, fewer than 5 out of 10.* Low scores in using applications and in programming seem to be related to the low frequencies of computer use in most classrooms. For example, about two-thirds of students assessed had never written computer programs. It should be noted that these three areas involve various skills that may be emphasized differently at different schools.

Students who had access to or training on computers answered a higher percentage of items correctly. Specifically, the experiences of having ever used a computer, studying computers in school, and having access to a computer at home are positively related to computer competence. Nevertheless, even the performance of advantaged students averaged less than 50 percent correct.

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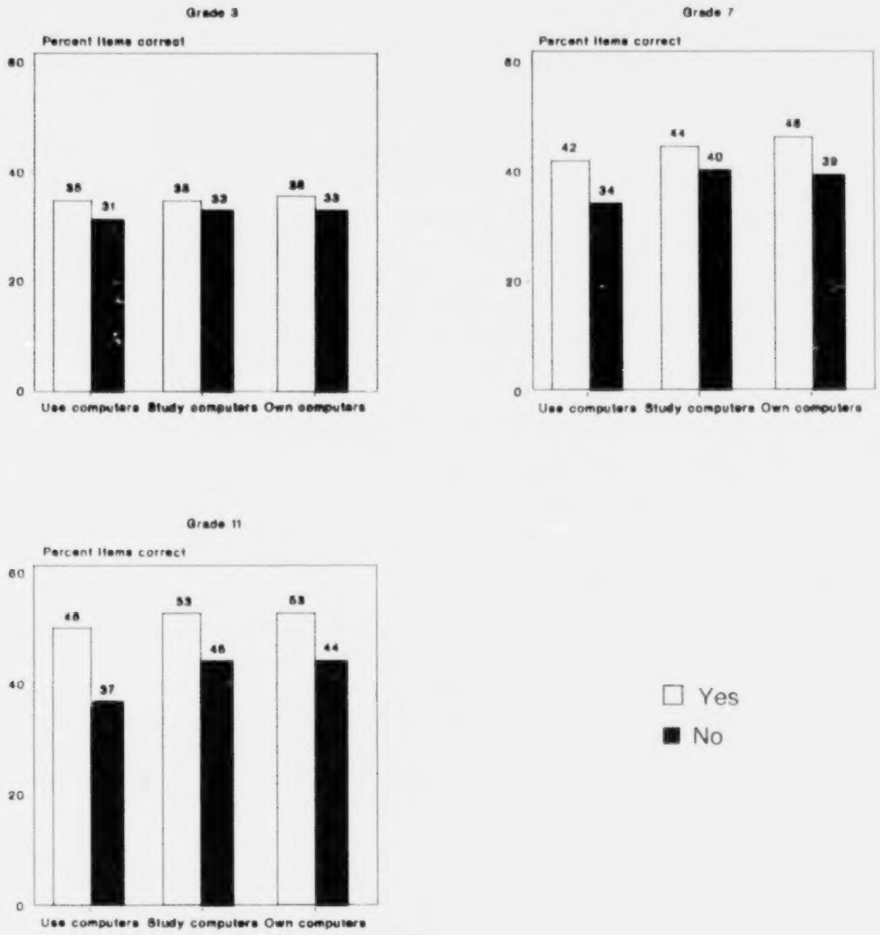
* The overall performance index appearing on the chart and corresponding table was derived by computing the mean percent correct for all items at that grade.

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessment*, 1988.

Chart 1:7 Performance on NAEP computer assessment, by grade and computer experience: School year ending 1986



SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessment*, 1988.

Indicator 1:8 Change in the percent of high school graduates earning credits in "new basics"

- **The percent of high school graduates who earned 13 credits or more in "new basics" (English, social studies, mathematics, and science) increased substantially between 1982 and 1987.**
- **This increase was shared by all racial and ethnic groups.**

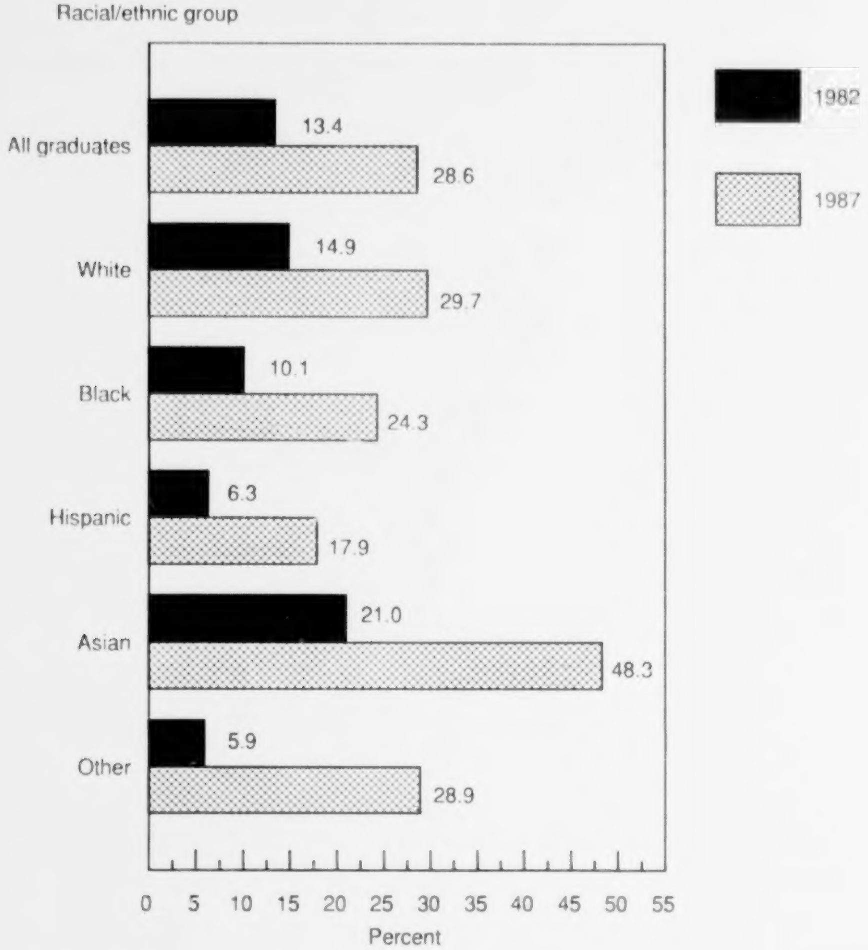
A major part of the education reform movement has been to encourage students to take, and schools to require, an increased number of basic courses in English, social studies, science, and mathematics. The National Commission on Excellence in Education recommended 4 credits in English, 3 each in social studies, science, and mathematics, 2 in foreign languages, and 0.5 in computer science. This indicator does not include the last two subjects, because many schools do not have computers for students, and many colleges do not require foreign languages for admission. If the number of students completing these requirements grows, the extent and impact of the current wave of reform will be apparent.

Between 1982 and 1987, the percent of high school graduates who completed 4 credits in English and 3 each in social studies, science, and mathematics more than doubled, from 13 percent to 29 percent. Asians showed the greatest percentage increase, from 21 percent to 48 percent, but no percentage growth of any racial/ethnic group was less than 12 percent.

While these increases are significant, they show that a majority of students still do not complete many basic courses. While Asians continue to outdistance all other groups, blacks and Hispanics lag behind. Unfortunately, these data do not provide any information as to whether the increased credits are accompanied by an increased depth of knowledge and understanding. Also, an increase in the number of credits earned does not necessarily mean a proportional increase in course content.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 High School Transcript Study.

Chart 1:8 Percent of high school graduates who earned recommended credits in "new basics," by racial/ethnic category: 1982 and 1987



NOTE: Recommended credits in "new basics" include 4 credits of English plus 3 each of social studies, mathematics, and science.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 High School Transcript Study.

A. Outcomes: Completions

Indicator 1:9 High school completion, by race and ethnicity

- **Nationally, about one out of every four 18- and 19-year-olds has not completed high school.**
- **The proportion of 20- to 24-year-olds who have completed high school has remained around 84 percent since 1974.**
- **The proportion of black youths, aged 18 to 19 and aged 20 to 24, who have completed high school has increased steadily since 1974.**

The public generally expects an 18- or 19-year-old to have a high school diploma or its equivalent, and most do. However, black and Hispanic youth lag behind white youth in this attainment. For example, in 1986, 77 percent of white 18- to 19-year-olds completed secondary school, but only 65 percent of black youth and 55 percent of Hispanic youth in this age group did so.

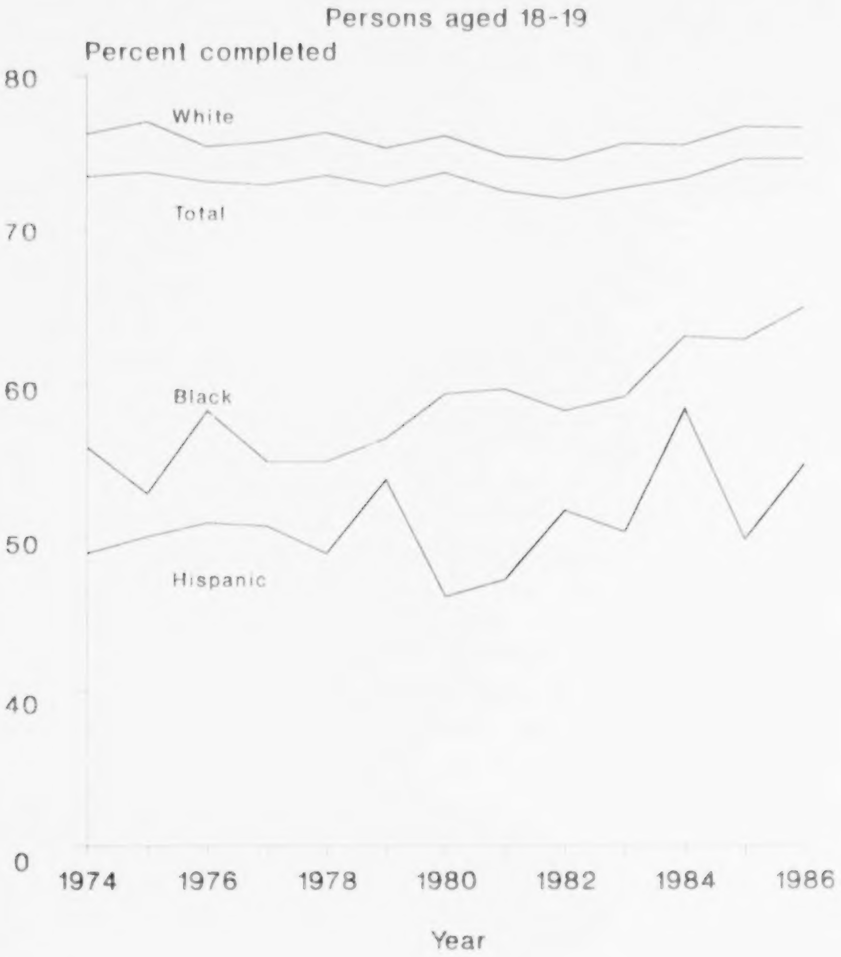
Many students complete their high school education in their early twenties. For example, the percentage of 20- to 24-year-olds who have completed secondary school is about 10 percentage points higher than for 18- to 19-year-olds. For the two age groups, completion rates were:

Year	Age: 18–19			Age: 20–24		
	White	Black	Hispanic	White	Black	Hispanic
	Percent of age group			Percent of age group		
1974	76	56	49	86	73	59
1980	76	59	46	85	74	57
1986	77	65	55	85	81	62

In 12 years, the percentage of blacks, both 18–19 and 20–24 years old, who have completed high school has increased considerably. Blacks 20–24 years old are now almost as likely as whites to have completed high school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment--Social and Economic Characteristics of Students, October [various years]," *Current Population Reports*, Series P-20, and unpublished tabulations.

Chart 1:9 Trends in high school completion rates, by race and Hispanic origin: 1974–1986



NOTE: Hispanics may be of any race.

SOURCE: Bureau of the Census, *Current Population Reports*.

A. Outcomes: Completions

Indicator 1:10 College entrance examination scores

- **After years of decline, Scholastic Aptitude Test (SAT) scores began rising in 1982. Scores have remained stable since 1985.**
- **ACT scores in English, social studies, and mathematics show a somewhat steady decline from 1970 to 1980. Mathematics continued to decline through 1983, while English and social studies stabilized. From 1970 to 1983, scores in the natural sciences remained relatively stable. Since 1983, scores in all areas have shown slight increases.**

The Scholastic Aptitude Test (SAT) and the American College Testing Program Assessment (ACT) are the tests taken most frequently by college-bound students. Both are designed to predict success in the freshman year in college. The SAT tests general verbal and quantitative skills, while the ACT is more subject-matter oriented.

From 1963 to 1980, the general trend in average SAT scores for mathematics, verbal, and total (mathematics plus verbal) was downward, with most of the decline occurring prior to 1976. There was some improvement in scores between 1982 and 1985, with little change since then.

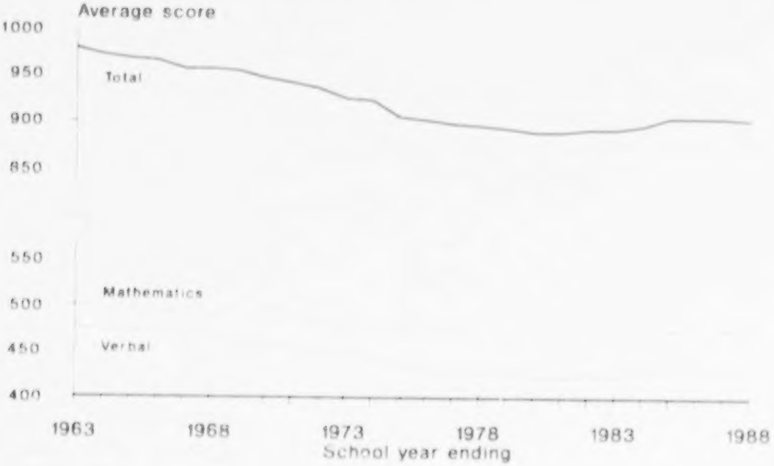
Trends for the ACT since 1970 are similar to the SAT. There was a period of decline in the 1970s, slight increases in the early 1980s and a somewhat stable performance pattern since the mid-1980s. The composite score, an arithmetical average of the 4 tests, shows periods of minor increases and decreases since 1976.

It is to be noted that the mix and percentage of students from the senior class taking these standardized tests have fluctuated over time and could impact on level of scores over time.

SOURCE: College Entrance Examination Board, *National Report: College-Bound Seniors*, various years. The American College Testing Program, *The High School Profile Report, Normative Data*, various years.

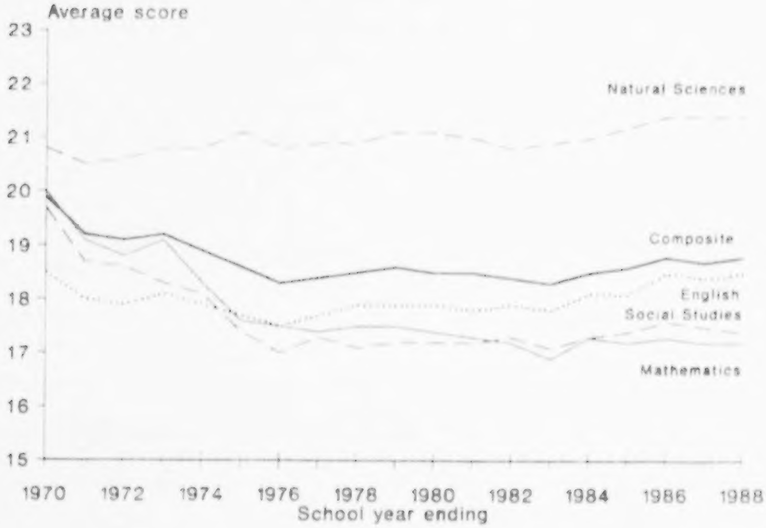
Chart 1:10 Trends in college entrance examination scores

Average SAT scores



SOURCE: College Entrance Examination Board

Average ACT scores



SOURCE: American College Testing Program

Indicator 1:11 Scholastic Aptitude Test (SAT) scores, by control of high school

- **In 1988, the mean verbal SAT score for students in independent schools was 30 points higher than for students in religiously affiliated schools and 44 points higher than for those in public schools.**
- **In 1988, the mean mathematics SAT score for students in independent schools was 47 points higher than for students in religiously affiliated schools and 41 points higher than for those in public schools.**

SAT scores have been watched for years as indicative of trends in high school graduates' abilities in mathematics and verbal skills. Because of the changing mix, by ability and ethnicity, of students taking these tests, definitive conclusions cannot be drawn on whether students with similar backgrounds perform better or worse now than in the past. Differences between the scores of public and private school students, however, may indicate an area for further analysis.

Public and private secondary schools differ in SAT scores for college-bound seniors. There also are differences between types of private schools. Prior to 1987, private schools were reported in a single category. Beginning in 1987, private schools were reported in two categories, "independent" and "religiously affiliated", which resulted in a more differentiated picture of SAT performance for public and private schools.

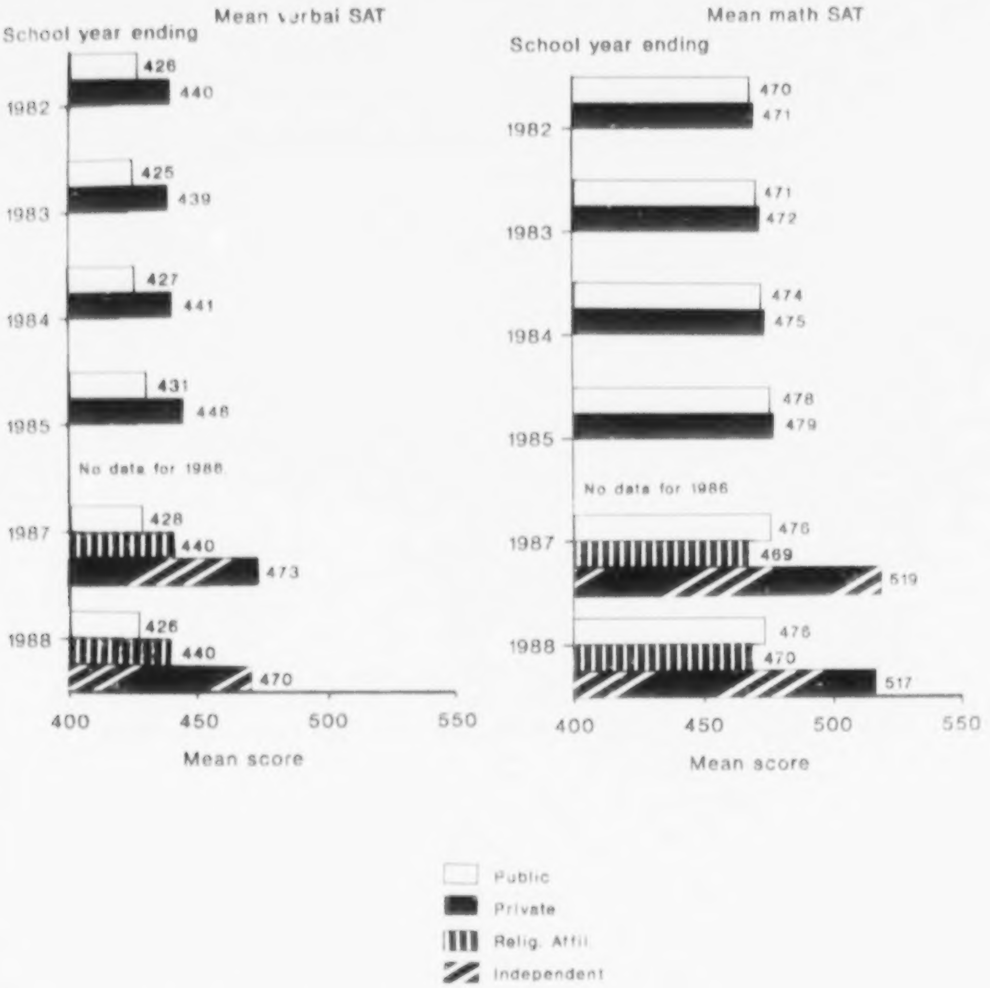
From 1982 to 1985, public and private school students' mean mathematics SAT scores were comparable. During the same time period, the mean verbal SAT score of private school students was typically 14 points higher than that of public school students.

The following table shows the performance patterns in 1988 for public, religiously affiliated, and independent school students on SAT verbal (V) and mathematics (M) tests and their differences from the national mean.

	Mean	Mean (difference from national mean)		
	National	Public	Religiously affiliated	Independent
V	428	426 (-2)	440 (+12)	470 (+42)
M	476	476 (0)	470 (- 6)	517 (+41)

SOURCE: College Entrance Examination Board, *The National Report of College-Bound Seniors, Profile of SAT and Achievement Test Takers*, various years.

Chart 1:11 Mean verbal and math SAT, by control of high school: 1982–1988



NOTE: As of 1987, private is reported as religiously affiliated or independent.

SOURCE: College Entrance Examination Board, *The National Report of College-Bound Seniors, Profile of SAT & Achievement Test Takers*, various years.

A. Outcomes: Economic Outcomes

Indicator 1:12 Unemployment rates of high school graduates and high school dropouts, 20–24 years old

- **High school dropouts tend to have higher unemployment rates than high school graduates.**
- **Unemployment rates of blacks are much higher than rates of whites or Hispanics, whether dropouts or graduates.**

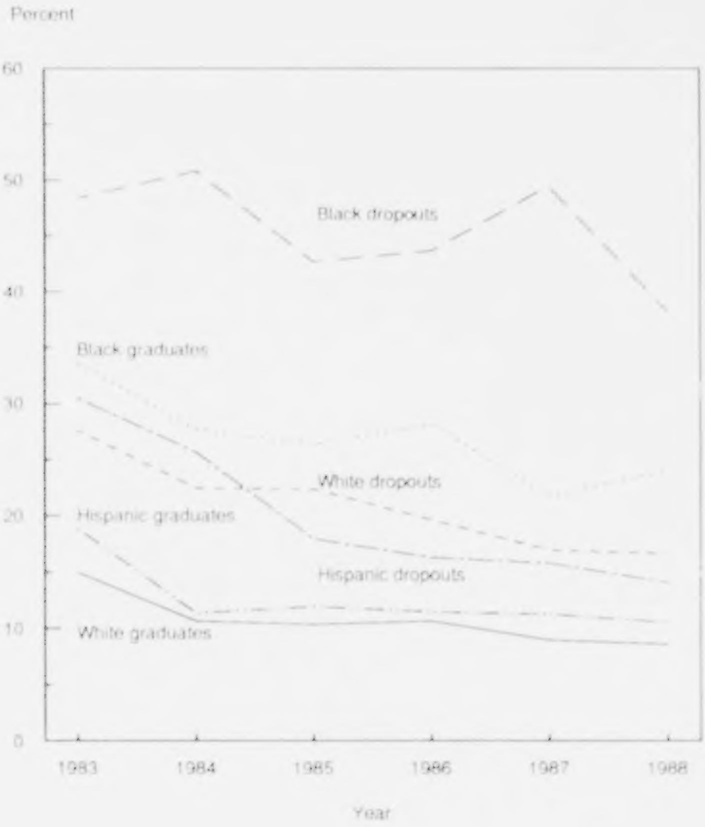
Students are regularly urged to complete high school, partly because of the undesirable economic consequences of dropping out for both the individual and society. Recent Federal legislation has re-emphasized concern about dropouts by providing funding for dropout prevention programs.

For young adults, those who have dropped out of high school are more likely to be unemployed than those who completed high school. Since 1983, high school dropouts, aged 20–24, have had unemployment rates 10–14 percentage points higher than those of graduates. Clearly, dropouts have not shared in the strong job market of recent years.

Unemployment rates vary significantly by race and ethnicity. A far greater proportion of blacks is unemployed than whites and Hispanics, whether dropouts or graduates. Black graduates 20–24 years old have unemployment rates similar to those of white dropouts in this age group. For Hispanics, the unemployment rate of dropouts was not significantly different from that for graduates in 1988, but the rate had been significant in every year between 1983 and 1987. Looking only at unemployment rates may hide the fact that many of the individuals in each of these groups may be in relatively low paying jobs.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Educational Attainment of Workers, March [various years]."

Chart 1:12 Unemployment rates of high school graduates and high school dropouts, by race and ethnicity: March 1983–March 1988



NOTE: Dropouts are those identified as completing 1-3 years of high school.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Educational Attainment of Workers, March [various years]."

B. Resources

B. Resources: Fiscal Resources

Indicator 1:13 Public school revenues

- **Since 1920, State and local governments have been the primary source of revenues for public elementary and secondary education; the Federal share has remained small.**
- **In 1979, an historic shift occurred when the States' share of revenues rose above the locals' share for the first time.**
- **Between the 1969–70 and 1986–87 school years, the State share of total revenues rose from about 40 percent to about 50 percent, the local share dropped from about 52 percent to about 44 percent, and the Federal share dropped from 8 percent to about 6 percent.**

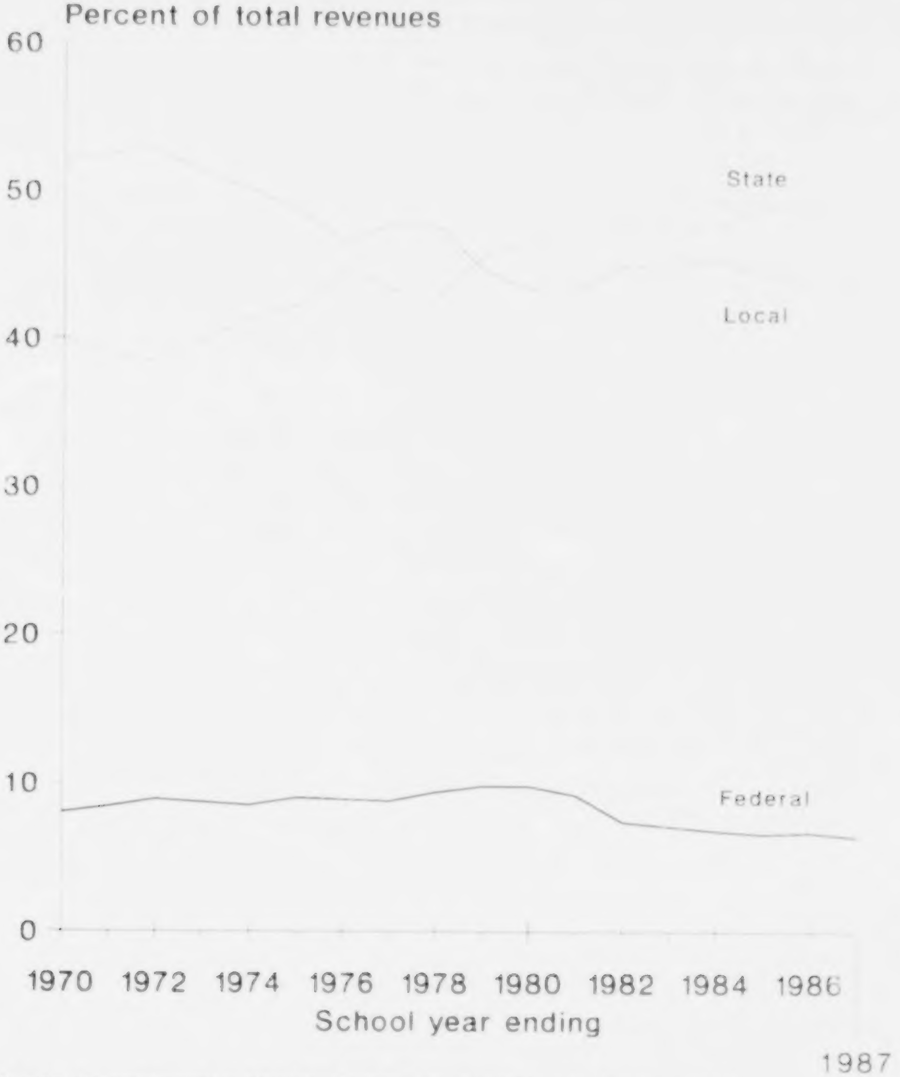
Public schools obtain revenues from three principal sources: local, State, and Federal governments. The share that each contributes is determined by many factors, including the public's perception of the role of various levels of government; the extent to which taxes are raised by various levels; the size of various tax bases; and the competing demands on tax revenues at various levels. Historically, local governments have been limited primarily to property taxes and State grants as a basis for raising funds. In recent years, voters in some States have limited the use of property taxes to generate additional funds (e.g., Proposition 13 in California). By comparison, most State governments use both the sales tax and income tax as revenue-raising vehicles. Recently, some States have earmarked a percentage of the revenue from State lotteries for education.

From school year 1919–20 through school year 1973–74, local governments provided more than 50 percent of all revenues for local elementary and secondary schools. Reflecting school finance reform efforts, including court cases, by the 1978–79 school year, more funds were provided by State governments than any other source.

Since the 1978–79 school year, the percent contributed by State governments has continued to rise, but more slowly than in much of the 1970s. In the 1986–87 school year, the State governments' contribution was comparable to the *combined* contribution from local and Federal governments. The percent for *each* State government's contribution, however, may vary considerably from the *total* State governments' contribution of 49.8 percent in 1987.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on Common Core of Data survey and its predecessors).

Chart 1:13 Trends in revenue sources for public elementary and secondary education: 1970–1987



SOURCE: National Center for Education Statistics, *Digest of Education Statistics, 1988*

B. Resources: Fiscal Resources

Indicator 1:14 Expenditure per pupil in public schools

- **Between the 1949-50 and 1986-87 school years, current expenditure per pupil in constant dollars almost quadrupled, from $982 to $3,977 per pupil.**
- **Between 1977-78 and 1981-82, current expenditure per pupil in constant dollars remained relatively unchanged, but then began rising from 1982-83 to 1986-87.**

One frequently used measure of financial resources available to public schools is per pupil expenditure. This measure is the ratio of expenditures for education to average daily attendance. Data on trends in per pupil expenditure provide information to policymakers at all levels of government on the overall availability of resources. However, they do not provide information about individual school district expenditures, the quality or type of resources provided, or their impact on the learning process.

Current expenditure includes spending for operating local public schools, including such items as salaries, fixed charges, student transportation, books and materials, and energy costs. Excluded are long-term expenses of capital outlay and interest on school debt, as well as community service. Total expenditure includes current expenditure plus these long-term expenses. Total and current expenditure may be expressed in both current and constant dollars, the latter adjusted for inflation.*

In constant dollars, current expenditure has grown at a faster rate than total expenditure, 305 versus 259 percent between school years 1949-50 and 1986-87, respectively. The growth rate of current expenditure, however, was not uniform. After rising steadily from 1949-50 to 1977-78, per pupil expenditure in constant dollars leveled off and remained relatively unchanged until 1982-83, when it began rising once again. (See *Indicator 1:21* for public school enrollment from 1972).

Trends in current expenditure per pupil vary widely from State to State and may not necessarily reflect national patterns. While current expenditure per pupil in the United States rose almost 66 percent in constant dollars between school years 1969-70 and 1986-87, State-level percentage increases varied during the same period from 142 percent (Alaska) to 31 percent (Utah).

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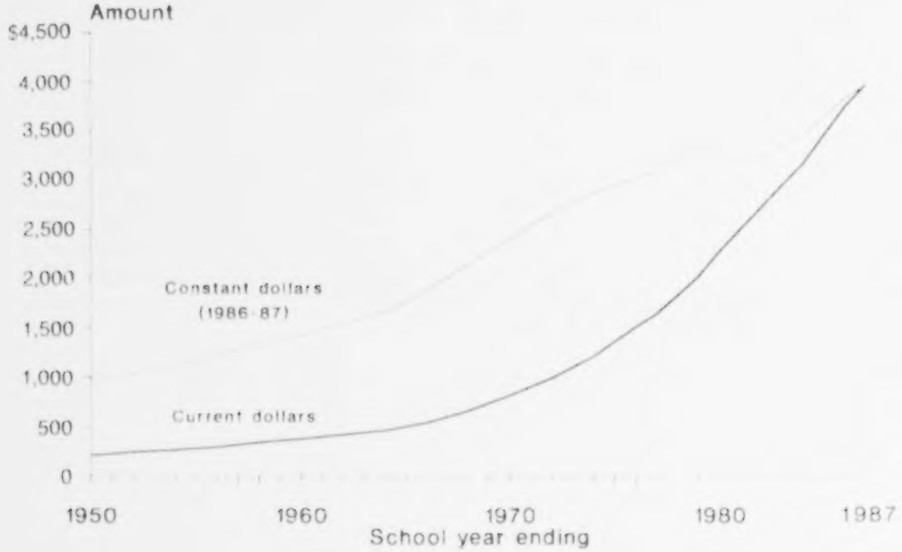
* Based on the Consumer Price Index for urban wage earners, prepared by the Bureau of Labor Statistics, U.S. Department of Labor. Data were adjusted from a calendar- to a school-year basis.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems*, various years; *Revenues and Expenditures for Public Elementary and Secondary Education*, various years; Common Core of Data survey, various years; and unpublished data.

Chart 1:14 Trends in current expenditure per pupil in average daily attendance in public schools: Selected school years ending 1950–1987



NOTE: Plotted years: even, 1950–1976; all, 1977–1987.

SOURCE: National Center for Education Statistics, *Statistics of State School Systems* and *Revenues and Expenditures for Public Elementary and Secondary Education*, Common Core of Data survey.

B. Resources: Fiscal Resources

Indicator 1:15 National index of public school revenues per pupil in relation to per capita income

- **The national index gauging per pupil revenues in relationship to per capita income has risen 64 percent since school year ending 1940.**
- **The national index fell 1 point between school years 1981 and 1982, but overall has risen 2 points since school year ending 1982.**

Countries often report the percent of GNP devoted to education as a measure of fiscal resources going to education. The national index presented here is a refinement of that approach. The numerator is revenues per pupil,* a measure of the resources or services accorded the typical pupil. The denominator is income per capita, a measure of the typical taxpayer's ability to pay. Therefore, the index reflects what is spent on the typical student relative to the typical taxpayer's ability to pay.

Four factors make up this index: 1) the number of pupils enrolled in public schools, 2) public education revenues, 3) total personal income, and 4) the total population. Between school years 1940 and 1988, the national index has risen 64 percent. This indicates that 64 percent more funds were available per student in 1987–88 in relation to per capita income than in 1939–40.

Changes over time in the overall index can be due to circumstances affecting any of the four factors. An increase in the index means either that per pupil revenues have grown relative to ability to pay, or that per capita income has declined relative to revenues per pupil. Conversely, a decline in the index demonstrates either that the resources accorded the typical pupil have declined relative to per capita income or that ability to pay has increased relative to per pupil revenues.

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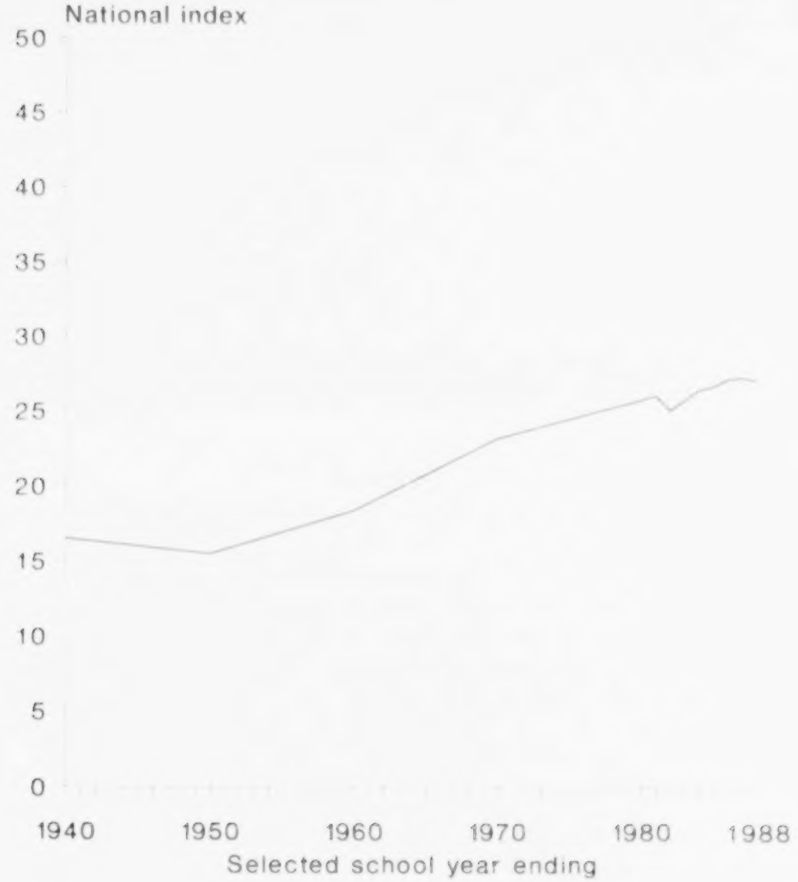
* Per pupil education revenues are the ratio of total public school education revenues (REV) to public school enrollment (ENR). Per capita income is the ratio of total personal income (INC) to total population (POP). The index can be expressed algebraically, therefore, as a function of four variables:

$$\frac{\text{Per pupil education revenues}}{\text{Per capita income}} \qquad \text{OR} \qquad \frac{\;\frac{REV}{ENR}\;}{\frac{INC}{POP}} \quad \text{X } 100$$

NOTE: This formula does not include private school enrollments or revenues, nor does it take into account other types of support of the public schools, such as volunteer work by parents.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest Of Education Statistics, 1989* (based on Common Core of Data Surveys, various years); and unpublished data. U.S. Department of Commerce, Bureau of Economic Analysis, *State Personal Income: 1929-82*, 1984, and *Regional Economic Information System*, August 1987.

Chart 1:15 **Trends in the national index of public school revenues per pupil in relation to per capita income: 1940–1988**



NOTE: Plotted points are 1940, 1950, 1960, 1970 and 1980–1988.

SOURCE: National Center for Education Statistics, *Digest of Education Statistics*, forthcoming. Bureau of Economic Analysis, *Survey of Current Business*, August 1988.

B. Resources: Human Resources

Indicator 1:16 Staff employed in public school systems

- **Between 1959-60 and 1982-83, the proportion of classroom teachers has declined from 65 percent to 54 percent of total staff in the public schools.**
- **Since 1983, the composition of public school staff has changed little.**

Today's public school systems employ a large number of personnel other than teachers, from district-level administrators to building maintenance workers. Diverse factors may cause the number and categories of staff to change over time. These factors include demographic changes as well as policy decisions at all levels of government. Examples include: (1) changes in pupil enrollment; (2) changes in the pupil/teacher ratio; (3) changes in legislative requirements; (4) the increased use of different types of instructional personnel; and (5) the addition of noninstructional tasks and responsibilities.

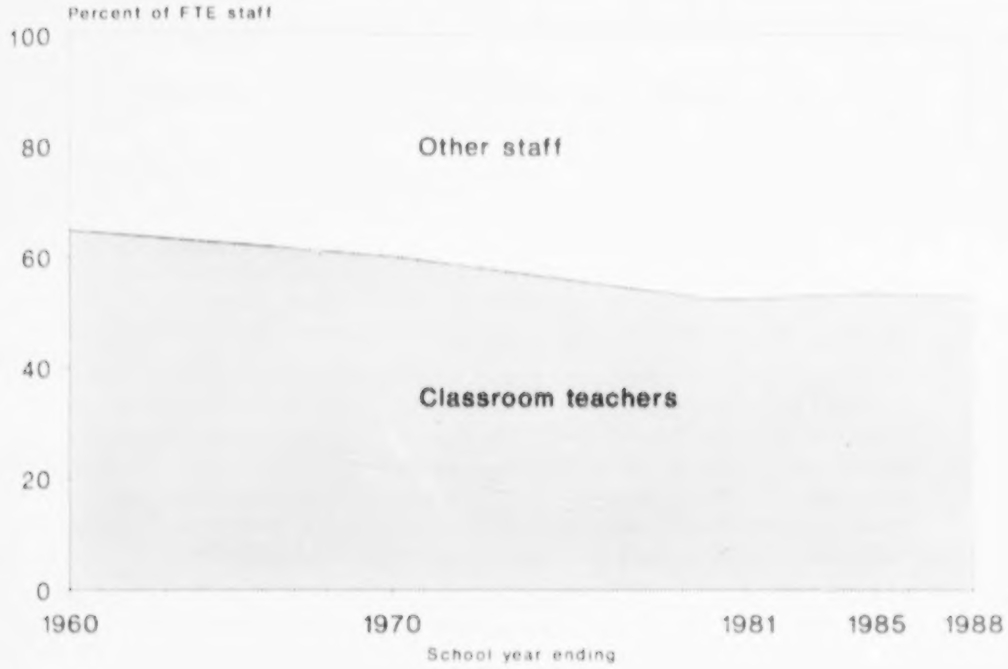
The number and types of staff employed by the public school systems of this country have changed considerably. Between school years 1959-60 and 1987-88, total full-time-equivalent (FTE) staff doubled (from about 2 million to over 4 million). The number of teachers employed grew substantially (from nearly 1.4 million to more than 2.3 million). Despite this growth, the percentage of teachers in relation to the total staff declined during this period from 65 percent to 53 percent.

In school year 1987-88, school systems employed about 4.3 million FTE staff. If the number of instructional support staff (instructional aides, guidance counselors, and librarians) is added to the number of classroom teachers, all instructional personnel would account for more than 63 percent of total staff. Administrators and administrative support staff would comprise another 13 percent, while other support staff (including, among others, bus drivers, security officers, and cafeteria workers) would make up the remaining 24 percent.

Over the last 7 years, the percentages of classroom teachers, instructional support, administrators and administrative support, and other support have changed very little. However, during the last 3 years, enrollments have been rising in the elementary schools (see *Indicator 1:21*). To date, this increase in enrollment has not been matched by a corresponding rise in the percentage of teachers on school staffs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems*, various years, *Digest of Education Statistics, 1985-86, 1987*, and *1988* and forthcoming.

Chart 1:16 **Classroom teachers as a proportion of total public school staff: Selected school years ending 1960, 1970, 1981, and 1985–1988**



SOURCE: National Center for Education Statistics, *Statistics of State School Systems* and *Digest of Education Statistics*, various years.

B. Resources: Human Resources

Indicator 1:17 Average annual salaries of public school teachers

- **Since school year 1980–81, average teacher salaries, adjusted for inflation, have risen almost 19 percent after declining 14 percent between 1972–73 and 1980–81.**
- **Teacher salaries at both elementary and secondary levels have risen at about the same rate (19 percent and 18 percent) since 1980–81.**
- **In 1987–88, the buying power of teachers' salaries was the highest in 30 years.**

There is an emphasis on the need to improve the quality of students entering teacher education and to enhance the status and professionalism of current teachers.[1] In response to this need, many States and local school districts have raised teacher salaries with the hope of attracting and retaining more and better teachers.

The average salary of a public elementary school teacher was $27,423 in school year 1987–88. During the same year, the average salary of a public high school teacher was $28,895. Through the 1970s, although the dollar amount of teachers' salaries was increasing, the buying power of teachers' salaries declined. Since school year 1980–81, salaries for both elementary and secondary school teachers have been rising steadily. Average salaries, when adjusted for inflation,[2] have increased by 19 percent; unadjusted, they have grown by close to 60 percent.

Education officials in all parts of the country are experimenting with teacher salary structures, creating new career steps, career ladders, merit pay schemes, and new positions with greater authority and responsibility. In the past, such experiments have been associated with increases in teachers' salaries.[3]

Salaries paid to teachers usually vary by length of service and level of education. Differences in average salaries are affected by changes in these factors as well as general salary levels.

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[1] Linda Darling-Hammond and B. Berry, *The Evolution of Teacher Policy*, Center for Policy Research in Education, May 1987.

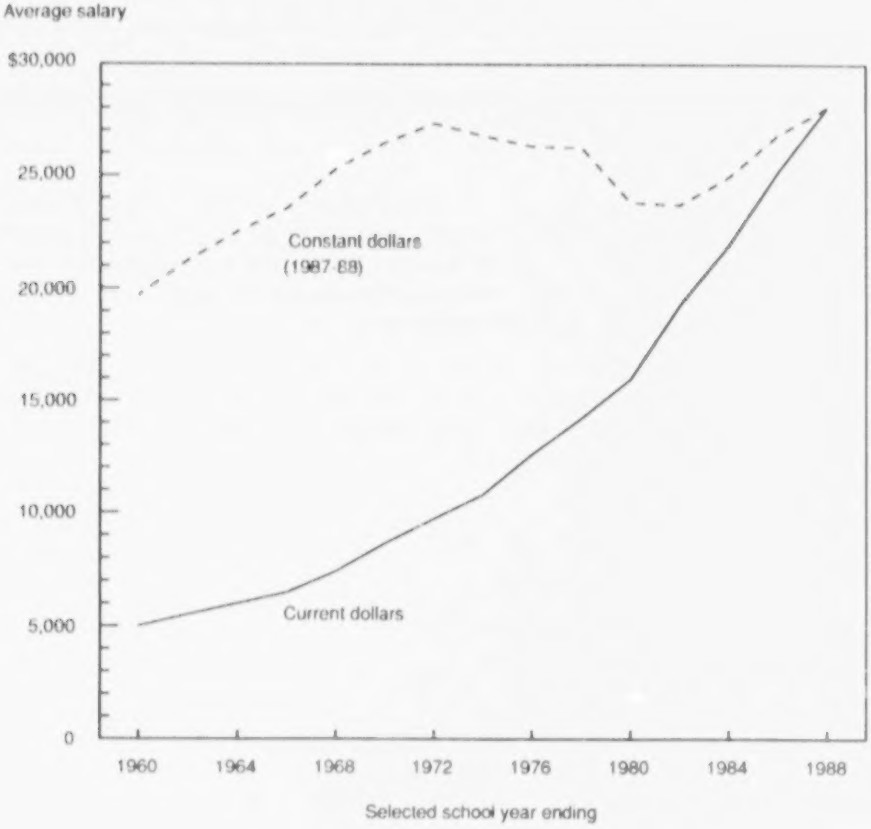
[2] Based on the Consumer Price Index (revision of 1988), prepared by the Bureau of Labor Statistics, U.S. Department of Labor, and adjusted to a school-year basis.

[3] Carnegie Forum on Education and the Economy, *A Nation Prepared*, 1986.

NOTE: Salary data are also collected by the American Federation of Teachers. Its latest research report is *Survey and Analysis of Salary Trends, 1988*, 1988.

SOURCE: National Education Association, *Estimates of School Statistics, 1987–88*, 1988, copyrighted (all rights reserved).

Chart 1:17 Trends in average annual salaries of teachers in public schools



SOURCE: National Education Association, *Estimates of School Statistics*, various years, copyrighted.

B. Resources: Human Resources

Indicator 1:18 Pupil/teacher ratios in public schools

- **Pupil/teacher ratios are consistently higher in elementary schools than in secondary schools.**
- **Pupil/teacher ratios have been dropping steadily since school year 1959–60 at both elementary and secondary levels.**

The pupil/teacher ratio reflects the relationship between the number of students enrolled and the number of full-time-equivalent instructional personnel [1] available to teach them. This ratio is of interest because of the popular assumption that with a lower pupil/teacher ratio higher student achievement will result. Research data, however, have generally not supported this assumption.[2]

Between 1959–60 and 1987–88, the pupil/teacher ratio in public elementary schools has declined from 28.7:1 to 19.5:1, a decline of 32 percent. During the same period, the pupil/teacher ratio in public secondary schools went from 21.5:1 to 15.3:1, a reduction of 29 percent.

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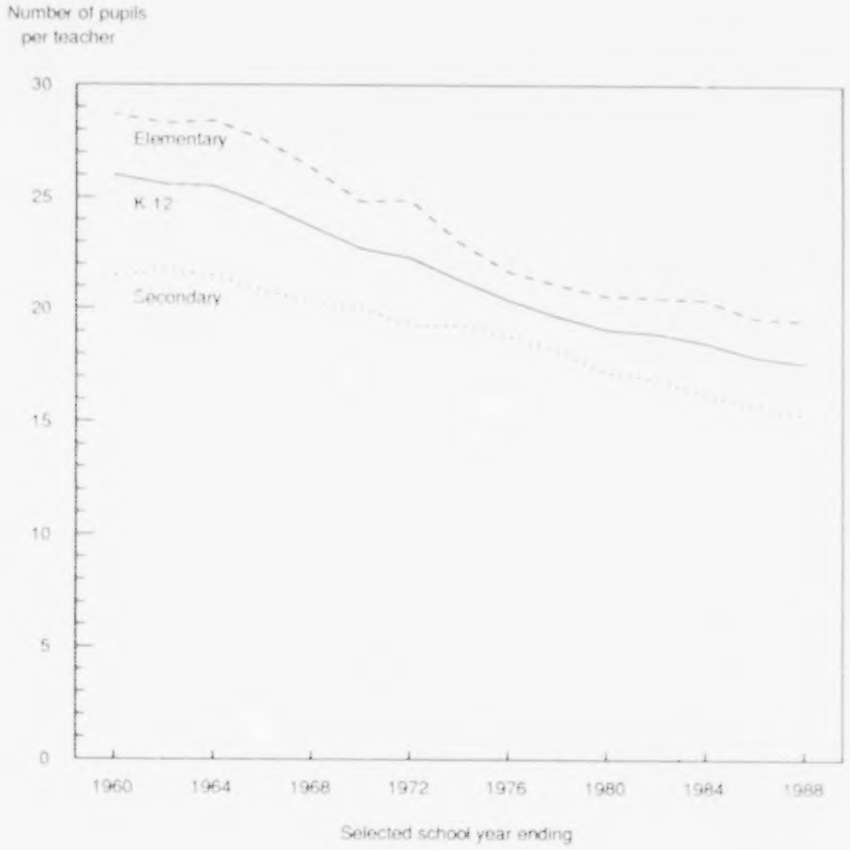
[1] Full-time-equivalent teachers include not only regular classroom teachers but also those, such as art, music, and special education teachers, who do not have regular classroom assignments. This category excludes staff who are not teachers but who provide educational services outside the classroom, such as counselors and librarians.

[2] U.S. Department of Education, Programs for the Improvement of Practice, *Class Size and Public Policy: Politics and Panaceas*, 1988.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Day Schools*, various years, and Common Core of Data survey, various years.

Chart 1:18 Pupil/teacher ratios in public elementary and secondary schools



SOURCE: National Center for Education Statistics, *Statistics of Elementary and Secondary Day Schools*, various years, and Common Core of Data survey, various years.

Indicator 1:19 Demand for new hiring of public school teachers

- **The projected annual demand for new hiring of elementary school teachers in public schools is expected to stabilize somewhat through 1997.**
- **For secondary school teachers, the projected annual demand is expected to increase rapidly from 1989 until 1995 before declining slightly.**

Projections of the need for hiring teachers help school officials plan their budgets. Such projections also aid policymakers who must devise and implement incentives to attract qualified individuals to the teaching profession. And, as an indicator of the future job market, such projections help those considering teaching as a career. The projected demand for new hiring may change for a variety of reasons, including fluctuations in student enrollment, changes in the pupil/teacher ratio, and teacher turnover.*

The projected numbers shown depict national trends. But the demand for new hires will vary by geographical location and subject area as States experience different rates of teacher turnover and enrollment growth.

The actual *numbers* of annual new hires are expected to remain consistently higher for public elementary schools than for public secondary schools between 1989 and 1997. Total demand for new hiring is expected to swell more than 24 percent by 1995, when it will peak. Most of this expected increase can be attributed to a rise of 57 percent in new hiring at the secondary school level between 1988 and 1995. While secondary schools will seek to fill 53,000 teaching slots in the fall of 1989, about 86,000 positions are projected to open in 1995. Various factors may account for this large jump, including rising secondary school enrollments (see *Indicator 1:21*) and teacher turnover. Demand for secondary school teachers is expected to decline after 1995, to a level of 83,000 in 1997. Larger enrollments are expected to contribute to greater demand for new hiring of elementary school teachers earlier in the 1980s, but the demand should level off starting in 1989, rising only 2 percent over the projection period.

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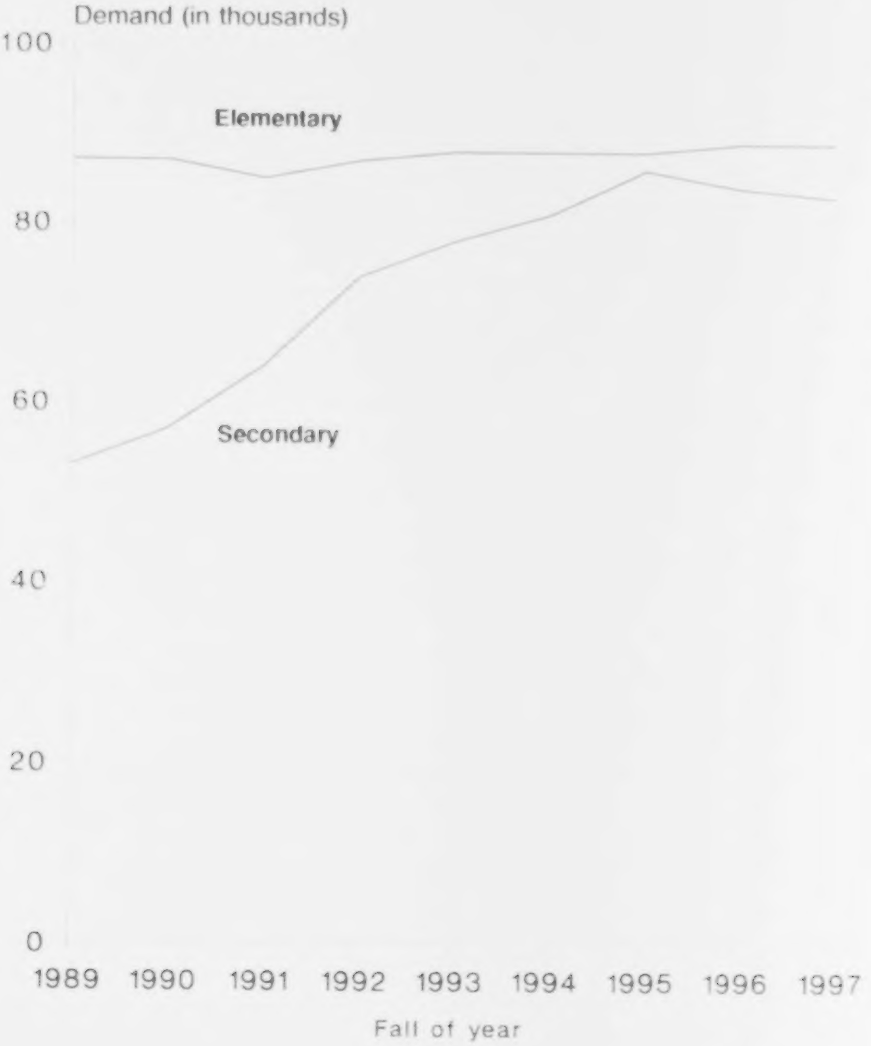
*Teacher turnover rate is assumed to be 4.9 percent at the elementary level and 5.6 percent at the secondary level (Bureau of Labor Statistics, unpublished tabulations). Turnover accounts for a far greater share of new hiring than do other factors, such as enrollment increases.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 1997-98*, 1988.

Chart 1:19 Projected annual demand for new hiring of teachers, by level: 1989–1997



SOURCE: National Center for Education Statistics, *Projections of Education Statistics to 1997-98*, 1988.

C. Context

C. Context: Student Characteristics

Indicator 1:20 Public and private school enrollment trends

- **After a period of relative stability in the early 1980s, public elementary school enrollment rose in 1986, while private elementary school enrollment remained essentially unchanged.**
- **High school enrollment in public schools rose during the early and mid-1970s, then began a downward trend through the early 1980s, and then stabilized; private school enrollment at the high school level changed little during this period.**

Education in the United States benefits from a long history of traditions regarding its schools. The tradition of public education has been complemented by a history of private, religiously oriented schools, as well as nonparochial or independent institutions.

Elementary school enrollment dropped sharply in both public and private schools in the 1970s, but changed little during the first half of the 1980s. An increase in public elementary enrollment occurred in 1986. High school enrollment in public schools rose in the early to mid-1970s and then turned downward, continuing on that path through the early 1980s. It has stabilized since.[1] Private high school enrollment has remained relatively stable since 1970.[2]

The percentage of all students who attend private schools has remained fairly stable since 1970. In 1986, almost one in nine students in kindergarten through grade 12 attended a private school.[3]

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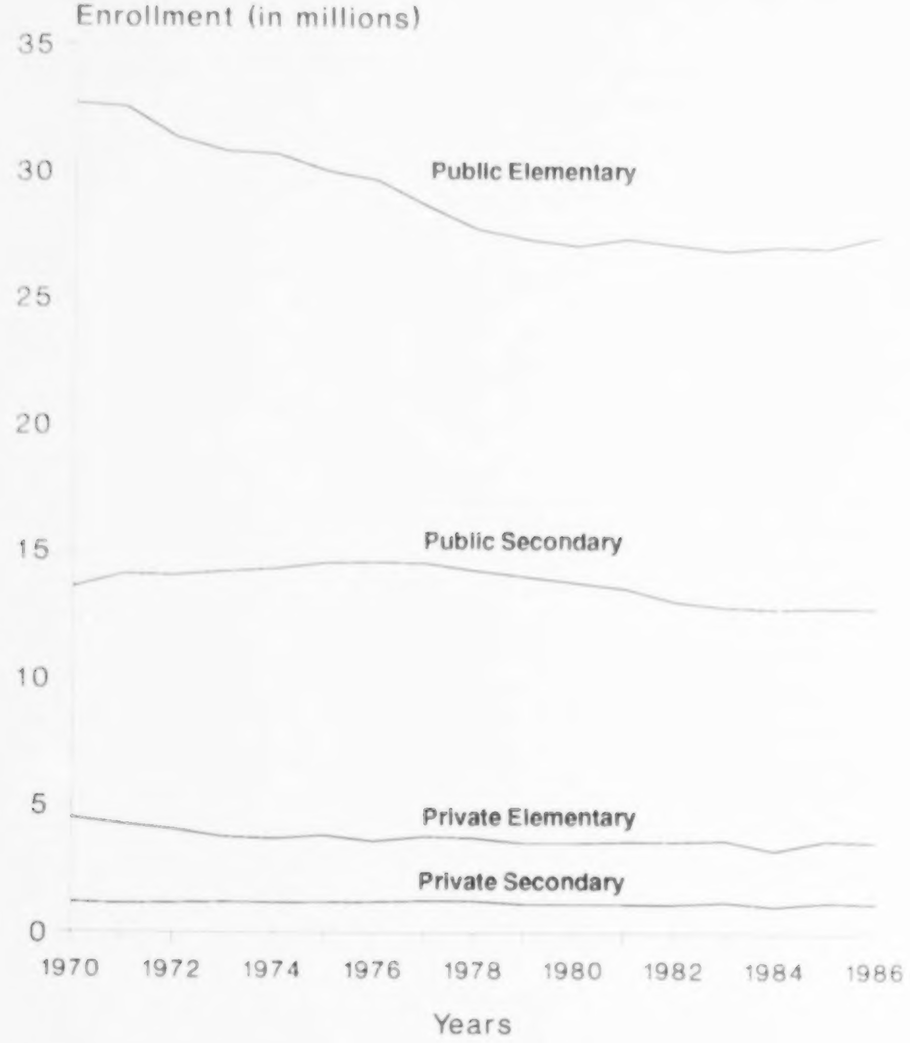
[1] See *Indicator 1:21* for a discussion of projected public school enrollment to 1997-98. Projected enrollments are not available for private schools.

[2] An unexplained drop occurred in the number and proportion of private school students in 1984, according to the Bureau of the Census. However, the 1984 data appear to be an anomaly, since the 1985 and 1986 figures are consistent with the trend for 1979 to 1983.

[3] There are two major sources of data on private school enrollment: the annual School Enrollment Supplement to the October Current Population Survey (CPS) and intermittent Private School Surveys conducted by the National Center for Education Statistics. The two sources sometimes produce differing estimates of the total number and proportion of private school students. For further discussion of data sources on private school enrollment, see U.S. Department of Education, *The Condition of Education, 1986 Edition*, pp. 186-201.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students: October 1984 (Advance Report)," "October 1985 (Advance Report)," "October 1986 (Advance Report)," *Current Population Reports*, Series P-20, Nos. 404 and 409.

Chart 1:20 Trends in public and private school enrollment, by grade level: 1970–1986



SOURCE: Bureau of the Census, *Current Population Reports.*

C. Context: Student Characteristics

Indicator 1:21 Trends in public school enrollment: 1972–1997

- **Total public elementary/secondary school enrollment declined during most of the 1970s and early 1980s.**
- **Enrollment in public elementary schools began to increase in 1985 and is projected to continue rising through 1997.**
- **The number of public secondary school students is expected to continue falling until 1991 and then begin to increase as students pass through the education system.**

Total public elementary and secondary enrollment declined through most of the 1970s and into the early 1980s as the baby boom generation grew older and moved through and out of the school system. Separately, the pattern for elementary and secondary enrollment[1] differed somewhat from the total enrollment trend. The number of elementary school students reached a record high in 1969, while secondary school enrollments peaked in 1976.

In part, because the children born during the baby boom years of 1946 to 1964[2] tended to delay marriage and childbearing, their offspring did not begin to produce a rise in public school enrollment figures until 1985. This baby boomlet is expected to continue swelling the number of elementary school students through 1997 (though the numbers will not return to record levels). Secondary school enrollments are expected to continue falling through 1990, and then the large numbers of elementary school students moving on to high school will raise secondary school enrollments.

State-by-State trends in elementary and secondary enrollment present an extremely varied picture.[3] Local economic and demographic characteristics and growth patterns vary substantially from State to State, directly affecting the size of a State's school-age population.

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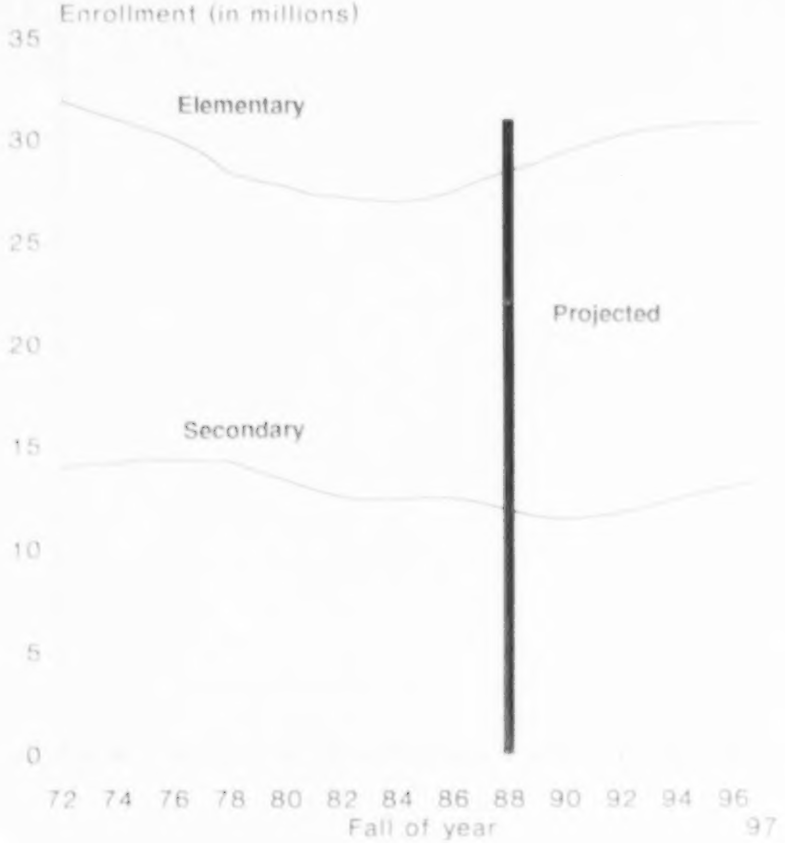
[1] Elementary enrollment includes most kindergarten and some prekindergarten enrollment, as well as grades 1 through 8. Secondary school enrollment includes grades 9 through 12.

[2] Leon F. Bouvier, "America's Baby Boom Generation: The Fateful Bulge," *Population Bulletin*, April 1980, 35:1.

[3] For changes in State public school enrollment, see U.S. Department of Education, National Center for Education Statistics, *Statistical Trends: State Facts 1975 to 1985*, 1988.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 1997–98*, 1988.

Chart 1:21 Trends in public school enrollment: Fall 1972–1997



SOURCE: National Center for Education Statistics, *Projections of Education Statistics to 1997–98*, 1988

C. Context: Student Characteristics

Indicator 1:22 Public school enrollment by race and ethnicity: 1976, 1984, and 1986

- **From 1976 to 1986, there was an increase in the number and proportion of minority students enrolled in the public schools.**
- **Hispanic enrollment grew from 2.8 million in 1976 to over 4 million in 1986, up 44 percent. During the same period, Asian enrollment increased from 535,000 to over 1 million, a proportional increase of 116 percent.**
- **White enrollment decreased by almost 13 percent during the same time period.**

Between 1976 and 1986, the ethnic and racial composition of the public schools underwent considerable change, caused by a rapidly increasing minority population. The greatest expansion occurred among the Asian and Hispanic populations. These increases portend a greater degree of heterogeneity of language and culture in the schools. Since many minorities come from impoverished families, as well, the changing enrollment patterns present the public schools and policymakers with challenges which must be met with bold and effective programs.

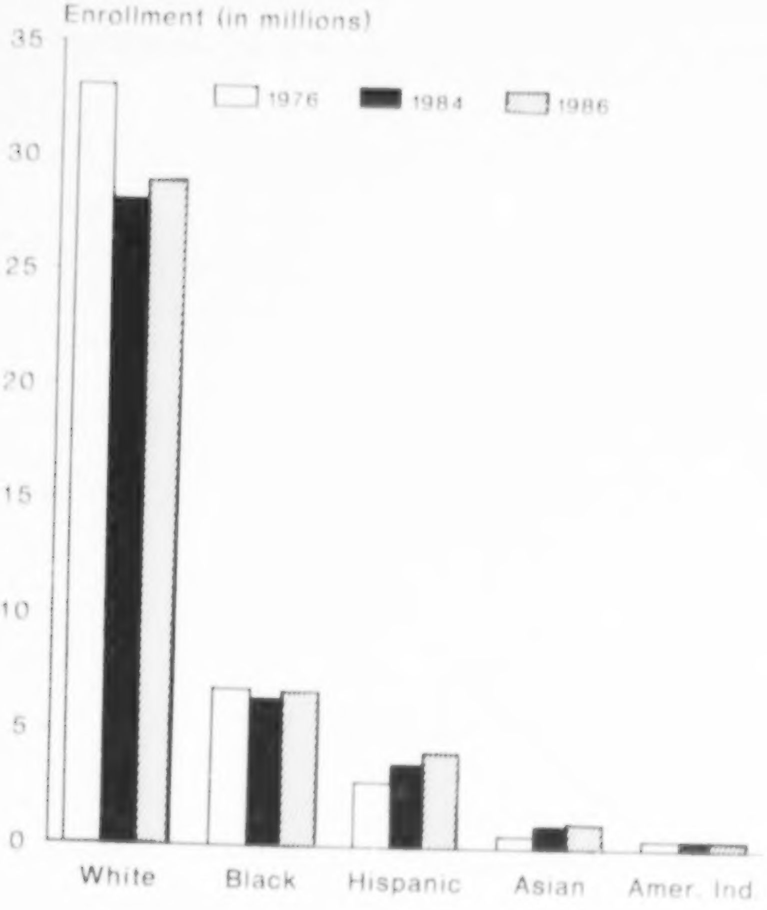
Nationally, the majority of the student population remains white. Twelve years ago white students accounted for about 76 percent of public school enrollment. That figure dropped to approximately 70 percent in 1986. At the same time, minority student enrollments increased from 24 percent of total enrollment in 1976 to almost 30 percent in 1986. In 1986, almost one out of every three students in American public schools was a minority student.

Asians experienced the most rapid growth during the 1976–86 period. They accounted for 2.8 percent of the total school enrollment in 1986, up from 1.2 percent in 1976, more than doubling their enrollment figures. Hispanics gained almost 45 percent, and accounted for 9.9 percent of total 1986 school enrollment.

From 1976 to 1984, enrollment figures for both blacks and whites declined, while Hispanic and Asian enrollment increased. In 1985, the elementary schools began experiencing a baby boomlet. Whites along with every minority group except American Indians experienced an upsurge in enrollment rates.

SOURCE: U.S. Department of Education, Office for Civil Rights, *Directory of Elementary and Secondary School Districts and Schools in Selected Districts: 1976–77*, and 1984 and 1986 Elementary and Secondary School Civil Rights survey, unpublished tabulations.

Chart 1:22 **Enrollment in public elementary and secondary schools, by race and ethnicity: Fall 1976, 1984, and 1986**



SOURCE: U.S. Department of Education, Office for Civil Rights, *Directory of Elementary and Secondary School Districts and Schools in Selected Districts: 1976-77*; and 1984 and 1986 Elementary and Secondary School Civil Rights survey.

C. Context: Student Characteristics

Indicator 1:23 Special education enrollment in federally supported programs

- **The total number of special education students rose between 1976–77 and 1987–88 from 3.7 to 4.4 million, due primarily to the growth in the number of students classified as learning disabled. This growth exceeded that of all the other groups combined.**
- **As a percent of the total public school enrollment, the number of special education students rose from 8 percent in 1976–77 to 11 percent in 1987–88. This percentage has changed little in the last 5 years.**

The Education of the Handicapped Act, enacted by Congress in 1975, ensures the availability of a "free and appropriate public education" to all children with handicapping conditions. Examining changes in the number and distribution of such students helps educators and policymakers assess the efforts to comply with this mandate and forecast the need to generate more resources.

Since the law was implemented on September 1, 1978, the number of children enrolled in federally supported special education programs has risen each year.[1] The increases were primarily due to the growing number of children classified as learning disabled.[2] This trend continued through 1988. During the same time period, the number of students classified as mentally retarded declined.

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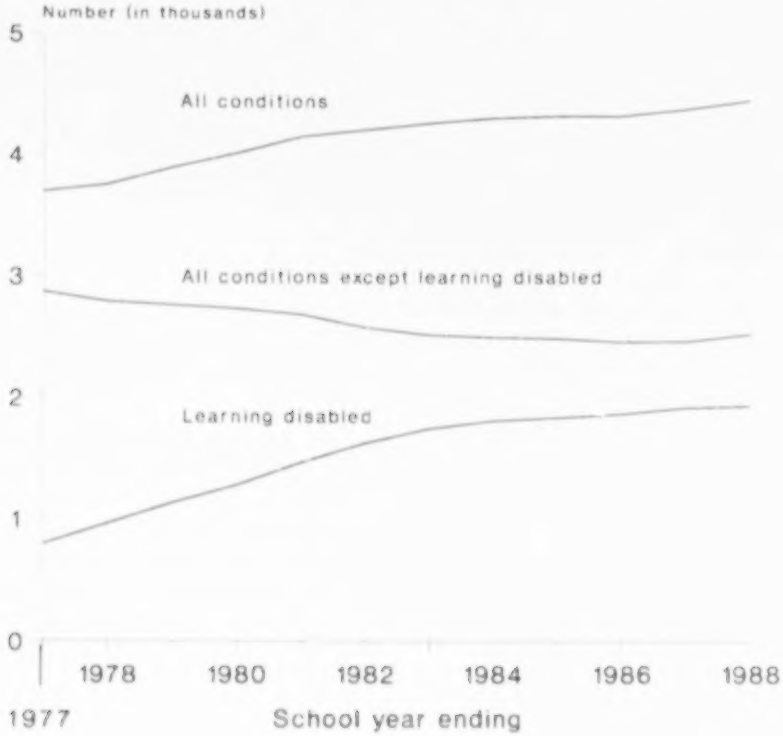
[1] The total count of children in special education programs includes children served under Part B of the Education of the Handicapped Act (EHA-B) and Chapter 1 of the Education Consolidation and Improvement Act in State-Operated Programs (ECIA-SOP).

[2] The figures reflected in this indicator are based on reports from the 50 States and the District of Columbia only (figures from the U.S. territories are not included).

SOURCE: U.S. Department of Education, Office of Special Education and Rehabilitative Services, *Annual Report to Congress on the Implementation of the Education of the Handicapped Act*, various years; National Center for Education Statistics, Common Core of Data survey; and unpublished tabulations.

Chart 1:23 Trends in the number of handicapped students served in federally supported education programs: School years ending 1977–1988



SOURCE: U.S. Department of Education, Office of Special Education and Rehabilitative Services, *Eleventh Annual Report to Congress on the Implementation of the Handicapped Act*, 1989.

C. Context: Learning Environment

Indicator 1:24 Teacher perceptions of disruptive behavior in the public schools

- **About 44 percent of teachers surveyed in 1987 said that disruptive student behavior had increased in the last 5 years.**
- **In the teachers' view, school discipline policies have improved significantly since 1980; still, half reported that policies were not consistently applied.**

Research on effective schools has identified a safe, orderly environment as a prerequisite to promoting student academic success. Educators and others are, therefore, interested in examining indices of student discipline and classroom environment.

In assessing the incidence of student disruptive behavior in 1987, 19 percent of public school teachers surveyed by the U.S. Department of Education felt there was "much more" disruptive behavior in their schools than 5 years before; another 25 percent indicated there was "somewhat more" now. Indeed, almost one-third of the teachers surveyed stated they had seriously considered leaving teaching because of student misbehavior.

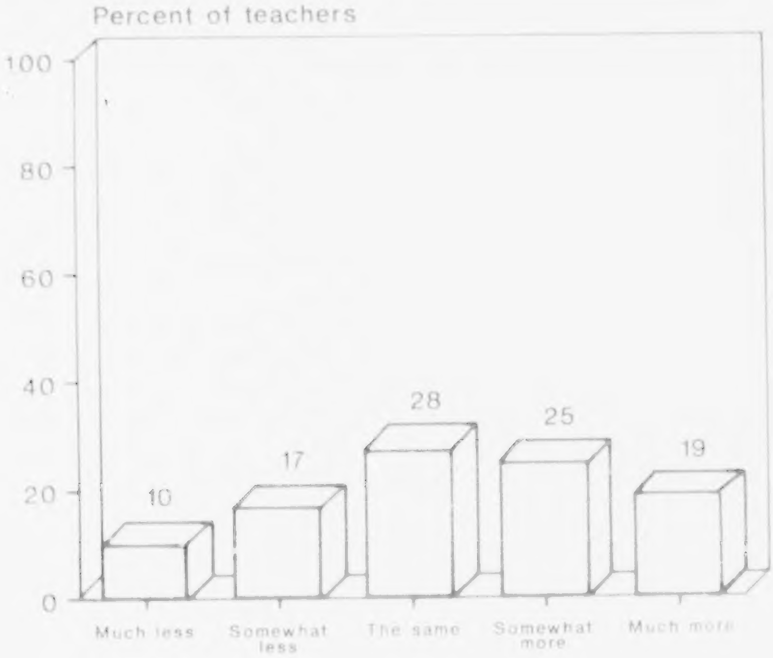
To obtain trend information on public school teachers' assessment of student discipline, findings from this survey were compared with polls conducted earlier in the 1980s by the National Education Association (NEA). Teachers in the 1987 Department of Education survey were considerably more positive about the discipline policies of their schools than their NEA counterparts in 1980. So, while teachers report an increase in disruptive behavior, perhaps they are finding it interferes less with their teaching because stronger discipline policies exist for dealing with it. The table below shows various positive characteristics of school discipline policy and the percent of teachers who said these characteristics described their school.

Year	School discipline policy characteristic				
	In writing	Strict enough	Comprehensive enough	Clear	Consistently applied
			Percent		
1980	69	39	42	60	33
1987	93	66	72	80	50

NOTE: Some caution is needed in interpreting comparisons of U.S. Department of Education survey figures and those of the NEA teacher polls, as the differences may be due in part to methodological variations between the studies.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, 1987.

Chart 1:24 **Changes in disruptive behavior as reported by teachers: School year ending 1987**



SOURCE: National Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, 1987.

C. Context: Learning Environment

Indicator 1:25 Student drug and alcohol abuse

- **Cocaine usage among high school seniors dropped significantly in 1988.**
- **While alcohol usage has generally declined since 1979, the rates of usage remain high. In 1988, almost two of every three seniors reported using alcohol in the month preceding the survey.***

Drugs and alcohol interfere with thinking and reduce academic achievement. Neighborhoods near schools are often magnets for drug dealers, who can be students themselves. Crimes of violence may accompany or result from substance abuse. In these circumstances, school effectiveness and the achievement of all students can suffer.

Drug and alcohol abuse, despite its health- and life-threatening consequences, is widespread among American students. Acquaintance with such substances—whether sedatives, hallucinogens, or stimulants—generally begins in adolescence and, increasingly, is beginning at even younger ages. While alcohol and illegal drug use has declined in the 1980s, it remains widespread. For example, by the time they are high school seniors, more than one-half of the students will have tried an illicit substance.

The rise in cocaine usage among students has been particularly dramatic in the last decade or so. In just 4 years, from the class of 1975 to the class of 1979, the proportion of students who reported using cocaine in the previous year doubled, from almost 6 percent to 12 percent. The share of students who ever used cocaine during a 1-year period peaked in 1985 at 13 percent. However, by 1988, this proportion had dropped to less than 8 percent. Similarly, the number of high school seniors who reported using cocaine in the previous 30 days declined from almost 7 percent in 1985 to just over 3 percent in 1988. There is evidence, however, that the inexpensive and highly addictive form of cocaine called "crack" has not followed the general decline in cocaine usage, especially in urban areas and among high school dropouts.*

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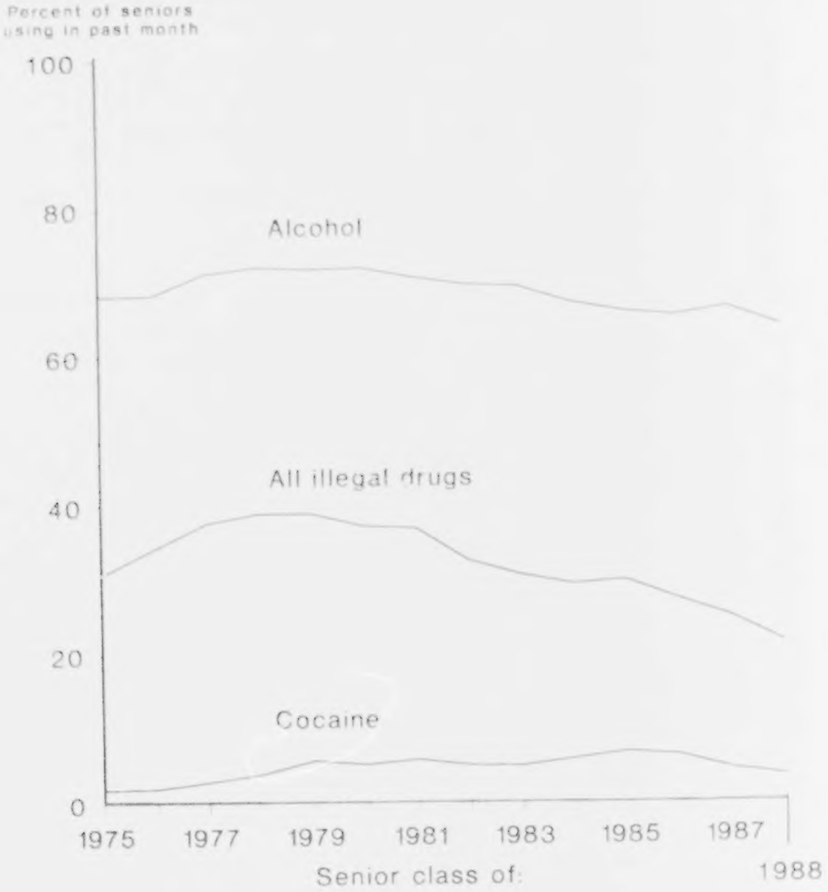
* "Young Adults Show Drop in Cocaine Use," *The New York Times*, January 14, 1988.

SOURCE: U.S. Department of Health and Human Services, Alcohol, Drug Abuse, and Mental Health Administration, National Institute on Drug Abuse, *Drug Use Among American High School Students, College Students, and Other Young Adults*, 1989; see also U.S. Department of Education, *Schools Without Drugs*, 1986.

Chart 1:25 Trends in the use of drugs and alcohol by high school seniors: 1975–1988



SOURCE: National Institute on Drug Abuse, *Drug Use Among American High School Students, College Students, and Other Young Adults*, 1989.

C. Context: Learning Environment

Indicator 1:26 Principals' perceptions of school climate and reading performance

- **Students enrolled in schools where the principals rated eight problems [1] as "not a problem" had higher reading scores than students in schools where principals rated them "minor" or "moderate."**
- **High school principals considered problems in their schools to be more serious than elementary school principals, especially in the areas of absenteeism, teacher motivation, low standards for students, and vandalism.**
- **Principals' average ratings indicate that private schools have fewer problems than public schools.**

Educators can contribute to an effective learning environment through strong leadership in emphasizing priorities, such as basic skills and academic success, having high expectations for all students, creating a safe and orderly atmosphere, and involving parents.[2]

Principals were asked to rate eight potential problems in their schools. Students in schools where these factors were rated as "minor" or "moderate" had lower reading scores than students in schools where they were not considered problems. In no school was the principal's rating "serious." The difference in reading scores was significant after taking into account student background characteristics such as race and ethnicity, parental education, and reading materials in the home.

High school principals rated their school problems as more serious than did elementary school principals. Lack of parental interest and lack of discipline were identified as minor or moderate problems in two-thirds of all schools. In 1 out of 10 high schools, student absenteeism and lack of parental interest were rated as "serious."

Principals' average ratings indicate that private schools experience fewer problems than public schools, particularly at the high school level.

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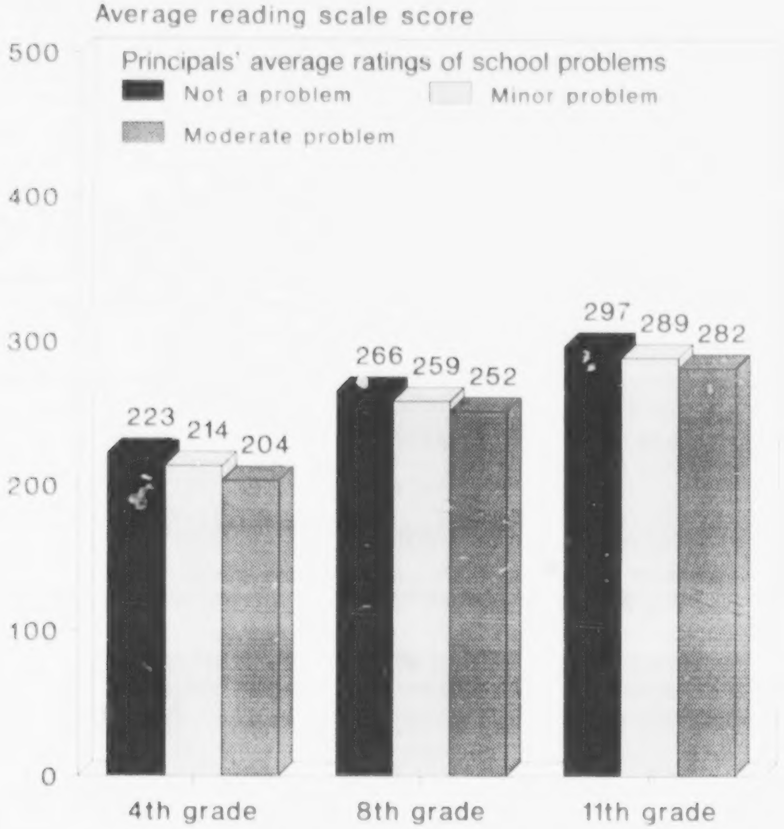
[1] The eight problems were student absenteeism, lack of parental interest, lack of discipline, lack of teacher commitment/motivation, teacher absenteeism, teacher turnover, low standards for students, and vandalism.

[2] U.S. Department of Education, Office of Research, *Reaching for Excellence: An Effective Schools Sourcebook*, 1985. See also S.C. Purkey and M.S. Smith, "Effective Schools: A Review," *The Elementary School Journal*, vol. 83 (4) (March 1983): 427–452.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "School Climate and Reading Performance," *Survey Report*, 1988.

Chart 1:26 Average adjusted reading proficiency, by average rating on school problems and grade: 1984



NOTE: Reading proficiency scale scores were adjusted for race and ethnicity, language spoken in the home, parental education, and number of reading materials in the home.

SOURCE: National Center for Education Statistics, "School Climate and Reading Performance," *Survey Report*, 1988.

C. Context: Perceptions

Indicator 1:27 Public opinion of public schools

- **The public has consistently rated its own local schools higher than it has rated the public schools nationally.**
- **In 1988, local public schools were rated higher by public school parents than by nonpublic school parents and by people with no children in school.**
- **The public's confidence in schools has not changed significantly since 1984.**

Public schools depend upon public support. Polls of the public's perception of the schools are gauges of the strength of that support. The annual Gallup Poll of the Public's Attitudes Toward the Public Schools provides data on the public's ratings of the schools. This poll has become a barometer, closely watched and debated each year by educators and policymakers.

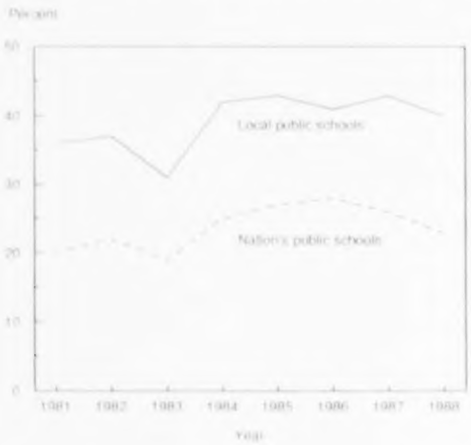
The most recent poll shows that in 1988, the public continued to grade its local schools higher than the Nation's schools as a whole. Local public schools were graded A or B by 40 percent of respondents in 1988, while only 23 percent rated the Nation's public schools A or B. This has changed little since 1984.

In recent years, the Gallup organization has distinguished between ratings by public school parents, nonpublic school parents, and those without children in school. In 1988, parents of children in public schools were more likely to give local public schools an A or B grade (51 percent) than parents of children in nonpublic schools (33 percent) or those with no children in school (37 percent).

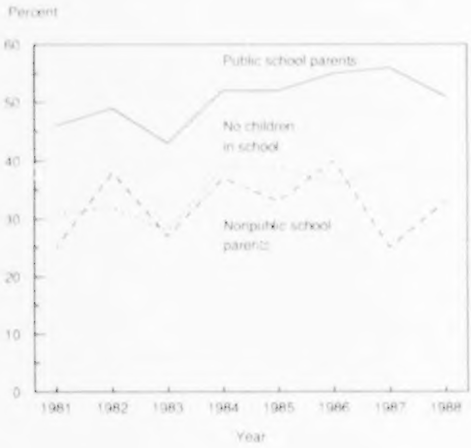
SOURCE: Alec M. Gallup and Stanley M. Elam, "The 20th Annual Gallup Poll of the Public's Attitudes Toward the Public Schools," *Phi Delta Kappan*, September 1988.

Chart 1:27 Ratings of public schools: 1981–1988

Percent of the public grading public schools A or B



Percent of the public grading local public schools A or B, by type of school involvement



SOURCE: The Gallup Poll, various years.

C. Context: Perceptions

Indicator 1:28 Teachers' perceptions of student problems and education improvement strategies

- **Teachers feel that a major reason students have difficulty in school is because they "are left on their own after school."**
- **Parents, more than teachers, feel that school-initiated policies can improve education.**

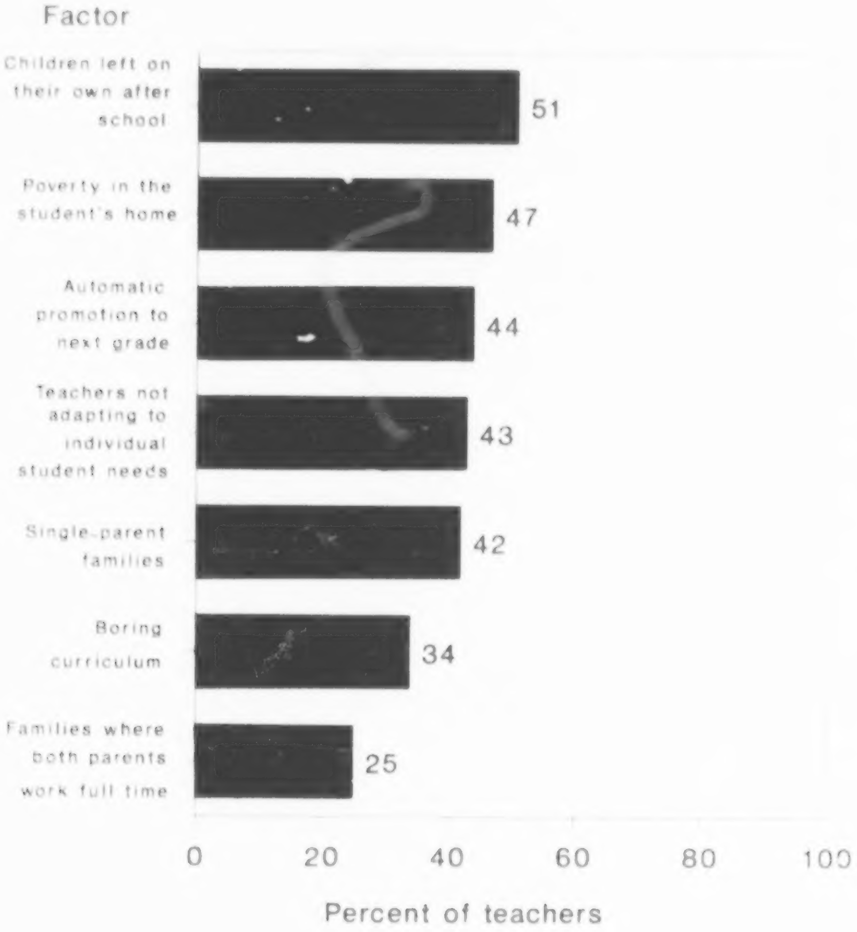
Research has shown that students with behavioral and academic problems could be school dropouts. In a 1987 survey, teachers viewed the phenomenon of "latchkey" children as a major problem. Half of the teachers surveyed felt that "children who are left on their own after school" was a major cause of school difficulties. Poverty in the home was the second most frequently cited cause, but the first most cited by teachers in districts of below average wealth.

Parents and teachers were both asked to rate the extent to which they felt each of seven criticisms of parents was valid. About 60 percent of teachers and parents surveyed felt that "many" or "most" parents leave their children alone too much after school. While 17 percent of parents of public school children surveyed acknowledged that their children are alone after school 1 or 2 days per week, 24 percent said that they are alone almost every day. Parents of black, junior high, and high school students are the most likely to say that their children are on their own almost every day after school, regardless of geographical location, parental income, or education levels.

Most solutions to a student's school problems require cooperation between parents and teachers, whether those solutions are school-initiated or home-based. However, on the extent to which they felt the reform would "help a lot" to improve education, parents and teachers surveyed differed on six of seven possible strategies. Of the six, the four that were school-initiated (such as "having the school notify the parents immediately about any problem involving their child") were favored by parents more than teachers. But teachers overwhelmingly supported one home-based strategy ("having parents spend more time with their children in support of school and teachers"). The sixth strategy ("getting teachers and parents to meet together and talk about school policies") involved both home and school.

SOURCE: *The Metropolitan Life Survey of the American Teacher 1987: Strengthening Links Between Home and School.*

Chart 1:28 **Percent of teachers who think that each factor is a "major cause" of students' difficulties in school: 1987**



SOURCE: *The Metropolitan Life Survey of the American Teacher 1987: Strengthening Links Between Home and School.*

C. Context: Requirements

Indicator 1:29 State requirements for graduation from high school

- **Approximately 67 percent of the States require the number of English credits and almost 50 percent require the number of social studies credits recommended by the National Commission on Excellence in Education.**
- **About 16 percent of the States require the recommended number of credits in mathematics and 6 percent require this number in science.**
- **A total of 19 States now require the passing of a competency test for high school graduation.**

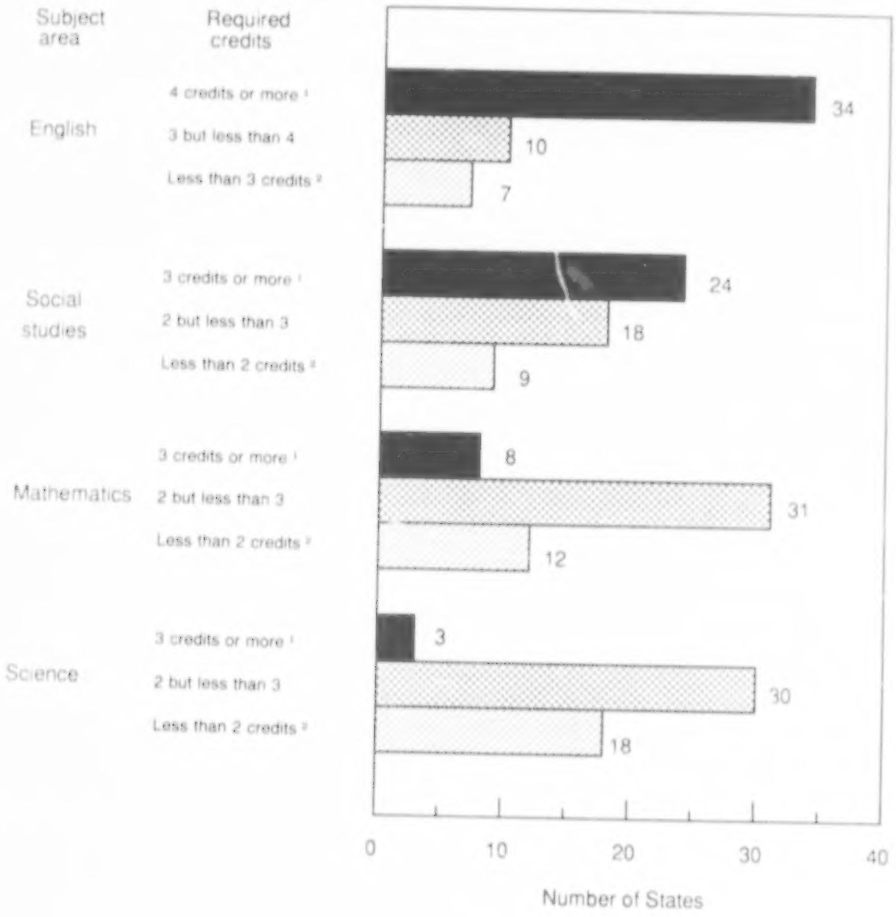
Graduation requirements are a measure of the academic rigor in the curriculum. They identify minimal requirements demanded of all students. Individual students may, and often do, elect a program of studies that exceeds the requirements. For example, college-bound students often complete programs that exceed State requirements. In 1983, the National Commission on Excellence in Education drew attention to this measure of school performance by recommending a minimum of 4 years of English and 3 years each of mathematics, science, and social studies.

The 1980s has seen a movement toward increasing State requirements for graduation. However, despite the movement towards establishing a more rigorous academic curriculum, many States still do not require as many credits as recommended by the National Commission on Excellence in Education. By the 1987–88 academic year, only 34 States required 4 years of English, and only 24 required 3 years of social studies. In the area of mathematics and science, most States required no more than 2 years in each. However, many local school districts require more than their States do, and many students are taking more credits than their States require (see *Indicator 1:8)*.

Accompanying the movement to increase course requirements for high school graduation, some States have imposed a competency test that must be passed before a diploma will be granted. A total of 19 States now impose such a test.

SOURCE: Council of Chief State School Officers, 1988 Policies and Practices Questionnaire.

Chart 1:29 Number of course credits required by States for high school graduation, selected subjects: 1988



[1] Number of credits recommended by the National Commission on Excellence in Education.

[2] Includes those States with no requirements in the subject.

SOURCE: Council of Chief State School Officers, 1988 Policies and Practices Questionnaire.

C. Context: Requirements

Indicator 1:30 State requirements for teacher preparation

- **By the fall of 1988, 46 States had enacted some form of competency testing as part of the process of certifying teachers.**
- **Within this group, 32 States require that students take an examination in order to be admitted to a teacher education program.**

States have taken the lead in seeking ways to improve the quality of teachers in elementary and secondary schools. To screen new teacher candidates, most States use some form of competency testing. With these tests, States hope to screen out teaching candidates who are deficient in basic skills and knowledge.

One subject of debate concerns what competency tests should cover. No nationally accepted test exists, so some States use commercially developed tests, and some use tests of their own design, while a few leave the choice of tests up to the colleges or universities. All tests cover basic skills, subject matter, teaching methods, or some combination of these.

There is no agreement on the best time to administer such tests. Some States require a test prior to initial certification, some States test prior to completing a teacher education program, but increasingly States are requiring a test before a student may be admitted to a teacher education program. By 1988, 32 States required a test at this point; two others will have them in place by 1990. A total of 46 States currently require a test at one of these points; two more States will have one or more tests in place by 1990. There are only three States that have neither prescribed tests prior to initial certification nor any planned.

As the National Board for Professional Teaching Standards develops and administers its tests, some standardization may occur. Such standardization would, it is hoped, enable competent teachers to move from one State to another more easily.

SOURCE: Council of Chief State School Officers, 1988 Policies and Practices Questionnaire.

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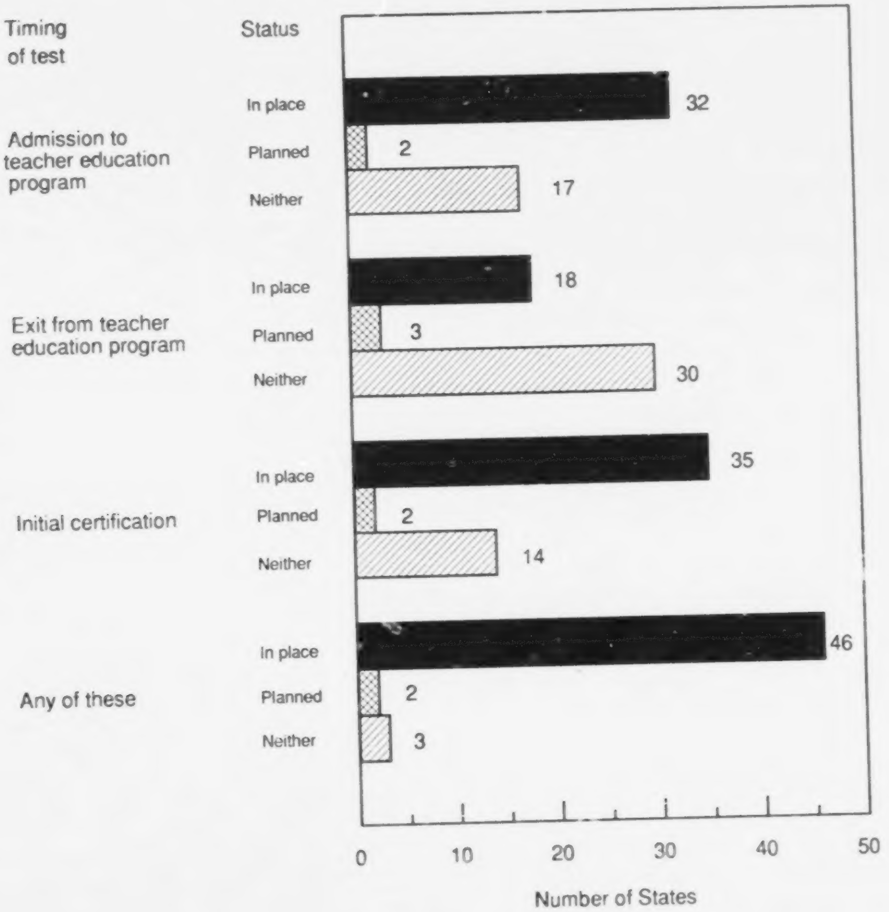
Chart 1:30 Number of States requiring tests prior to initial certification for teaching: 1988



SOURCE: Council of Chief State School Officers, 1988 Policies and Practices Questionnaire.

Introduction

Institutions of higher education are being challenged to prepare students to deal with the complex problems facing the country, including the demands of increasingly competitive world markets and long-term economic and technological growth. Growing emphasis on the need to evaluate what colleges teach and what college students study and learn is, at least in part, a response to these issues.

Colleges and universities also face pressure to curb increasing costs. Rising tuition levels have caused considerable concern about students' ability to afford college education. As a result, the public has turned its attention to how higher education institutions spend their money and how much they charge students in tuition and fees. Another problem confronting these institutions concerns the enrollment of low income and minority students in higher education.

The indicators in this volume provide information important to the public debate of these and related issues. On the positive side, enrollments in colleges and universities continued to grow in size and diversity in the 1980s. Enrollments increased despite a decline in the traditional, college-age population. The total number of degrees and the number awarded to racial and ethnic minorities, except blacks, also increased. A college education continued to make an important difference in workers' earnings. Research and development expenditures at academic institutions grew considerably. Faculty salaries recaptured some of their earlier losses in purchasing power.

Some less encouraging trends also occurred in the 1980s. Tuition increased substantially, as did most types of higher education expenditures. A smaller percentage of Americans earned degrees in scientific and engineering fields, while the foreign student presence in these fields—especially at the graduate level—grew. These trends have created concern about the country's ability to replace an aging work force and to remain competitive internationally. Finally, despite population growth and stable participation rates, the number of degrees earned by black males decreased at all degree levels.

Context

Higher education has been confounding prognosticators for years. Despite the decline in the 18- to 24-year-old population, enrollments have not declined, but rather have increased (*Indicators 2:16* and *2:18*). While the number of individuals in the traditional age group of most college students (18- to 24-year-olds) has declined, their participation rate has increased. At the same time, the participation rate of those over the age of 25 has also increased (*Indicator 2:18*). Enrollment of part-time students and women students continues to increase (*Indicator 2:17*). However, after years of increasing participation by blacks and Hispanics, the participation rates for these groups were no higher in 1986 than in 1976 (*Indicator 2:19*). The increase in enrollment, therefore, has carried with it long-term changes altering the student body in ways that have challenged the system.

Outcomes

Students in higher education have become more oriented towards business and technology. Both the share and the number of students completing degrees in education and the liberal arts have declined, while those in business, computer sciences, and engineering have increased (*Indicators 2:3* and *2:4*). These changes in the selection of majors are pervasive among all students. They have occurred in all racial/ethnic groups (*Indicator 2:6*).

Women have increased their percentage of degrees earned in higher education at all degree levels (*Indicator 2:7*). They have also dramatically increased their numbers of degrees in areas that used to be dominated by men, such as business, engineering, and computer science, as well as many other fields (*Indicator 2:8*).

Foreign students now account for more than 20 percent of master's degrees in mathematics, computer science, and engineering. They also account for more than 25 percent of the doctor's degrees in these same three fields, with the total in engineering over 40 percent (*Indicator 2:9*).

The attainment of a degree, whether bachelor's, master's, doctor's, or first-professional is a step on the way to employment. In general, the percentage of 25- to 34-year-olds who have completed 4 years of college has stabilized in the past few years. Degrees awarded to minorities are not increasing consistent with their participation (*Indicator 2:19*). Nor is the rate of degree attainment increasing in general (*Indicator 2:5*). This is particularly problematic for blacks, because the financial advantage of a college degree over a high school diploma is great, and this advantage is greater for blacks than for whites (*Indicator 2:10*).

Financing of Higher Education

The sources of revenues for institutions of higher education have not changed in recent years (*Indicator 2:12*). While the revenue sources have been relatively stable, expenditures per full-time-equivalent student, including those for instruction, have been increasing at a faster rate than inflation (*Indicator 2:13*). Faculty salaries, while increasing, are still lower in constant dollar terms than they were in the 1970s (*Indicator 2:14*). While the total amount of research and development spending has continued to increase in recent years, the proportion attributed to the Federal Government has been declining. Institutions have been replacing those funds with funds from industry and their own institutional resources (*Indicator 2:11*).

Conclusion

The indicators presented in this volume provide insights into the condition of colleges and universities. Higher education has reached a plateau. Participation rates of minorities and women seem to have stabilized, as have educational attainment levels. But some indicators suggest considerable progress while others identify potential problems.

Discouraging indicators show that the numbers of degrees awarded to men, particularly black men, have gone down. Foreign students are increasingly dominant at the higher degree levels in engineering. There is a distinct shift away from concentration in the liberal arts to business and technology. Also discouraging are the rapidly rising tuition levels and the lagging faculty salaries that fall behind the levels of the early 1970s.

Encouraging indicators are those showing that more students over 25 are participating in higher education and that women have moved into many fields in which their representation has been low. Research and development funds have not declined despite reductions in Federal funding.

A. Outcomes

A. Outcomes: Completions

Indicator 2:1 Trends in higher education attainment

- **The proportion of young adults (25 to 34 years old) with some college education rose more than 50 percent during the 1970s, and then remained level in the 1980s.**
- **In 1988, nearly 5 out of 20 young adults had completed 4 or more years of college, while more than 7 of 20 had completed at least 2 years and about 9 of 20 had completed at least 1 year.**

The Nation's educational growth has an impact on its social and economic life, affecting the welfare of individuals, families, and the Nation as a whole. Trends in years of college completed indicate changes in the educational level of the country's work force and thus provide clues to current and future socioeconomic conditions.

The pattern of higher education attainment of the 25- to 34-year-old population is shown below.

Year	Years of college completed		
	1 or more	2 or more	4 or more
		Percent	
1970	30	24	16
1976	41	34	23
1982	45	37	24
1988	45	37	24

Despite gains made by blacks and Hispanics, minority attainment in higher education still lags behind that of whites. For blacks, rates of college attendance, * after rapid growth in the 1970s, stabilized in the 1980s at a little over 33 percent. Hispanic rates increased in the 1980s, but at 29 percent in 1988, their attendance rates still remain below those for both whites and blacks.

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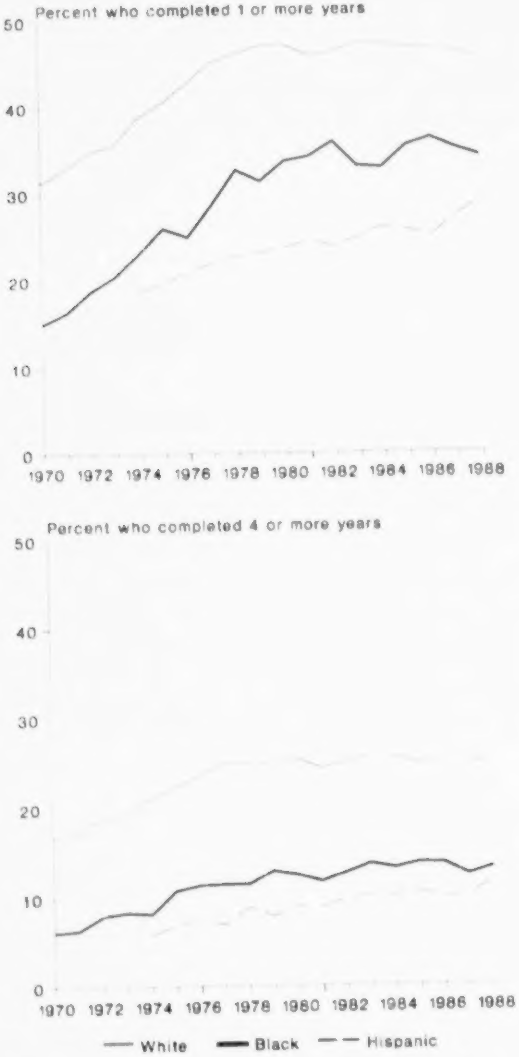
* For purposes of this indicator, "college attendance" is defined as completing at least 1 year of college.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Educational Attainment in the United States," various years, *Current Population Reports*, Series P-20 and unpublished tabulations from the March supplement to the Current Population Survey.

Chart 2:1 Trends in the number of years of college completed by 25- to 34-year-olds: 1970–1988


Percent who completed 1 or more years

Percent who completed 4 or more years

SOURCE: Bureau of the Census, *Current Population Reports*, various years.

Indicator 2:2 Degrees conferred, by level

- **The total number of degrees conferred by American colleges and universities increased 31 percent between 1971 and 1983, but growth has been flat since then.**
- **Associate and first-professional degrees showed the greatest proportionate increases during the 1971 through 1986 period, rising 77 and 95 percent, respectively.**

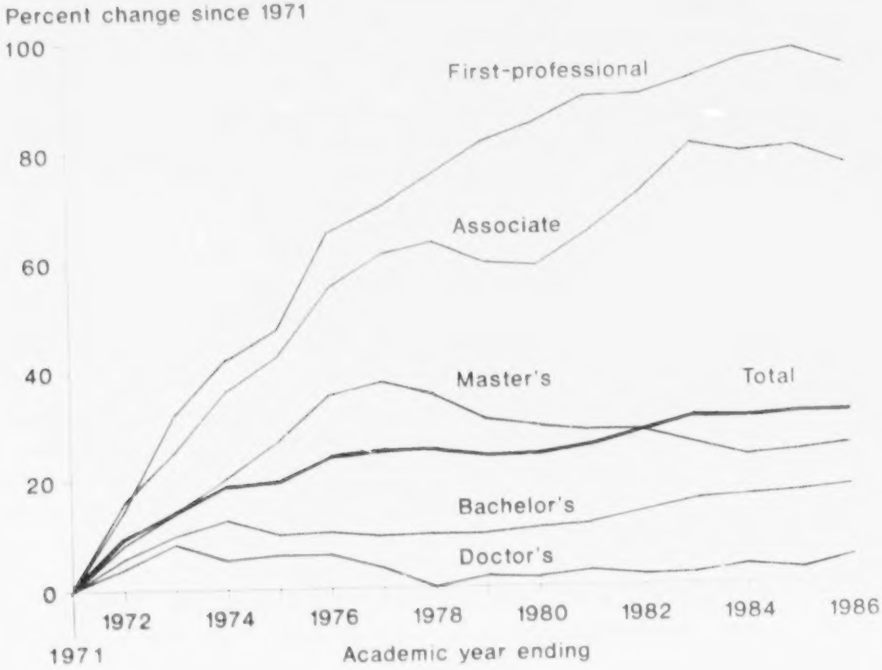
Trends in the number of degrees conferred provide a sense of the productivity of the Nation's system of colleges and universities and provide clues to the level of trained individuals in the society. In the last 15 years, the number of degrees awarded annually rose from 1.4 to 1.8 million. The numbers and relative growth at each degree level contrasted substantially, however, reflecting changing interests and educational goals of students.

Between 1971 and 1986, the number of bachelor's degrees conferred rose 18 percent, from nearly 840,000 to nearly 988,000. This growth was not steady, however. The number climbed during the early- to mid-1970s, but then fell sharply in 1975 and remained relatively level through the latter half of the decade. In 1980, a consistent upswing began. The number awarded in 1986 represented an all-time high.

Associate and first-professional degrees grew rapidly over much of the period. Recently, however, growth at these levels has tapered off or declined. Master's degrees, following substantial growth in the early- and mid-1970s, declined consistently until 1984, but then shifted upward slightly. The number of doctor's degrees changed very little over the 1971 through 1986 period, ranging from a low of a little over 32,000 in 1971 to a high of nearly 35,000 in 1973.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Chart 2:2 **Percent change in the number of degrees conferred since 1971: Academic years ending 1971–1986**



SOURCE: U.S. Department of Education, National Center for Education Statistics, surveys of degrees conferred, various years.

Indicator 2:3 Bachelor's degrees conferred, by field

- **Although the total number of bachelor's degrees increased between 1971 and 1986, the number and proportion conferred in the humanities, social and behavioral sciences, natural sciences, and education fell. Education experienced the sharpest decline.**
- **Over the same period, the number and proportion of degrees conferred in the computer sciences, engineering, business and management, and other technical/professional fields rose substantially.**

Shifts in student preferences for fields of study, as reflected in changes in the number and proportion of bachelor's degrees conferred in different fields, can profoundly affect the demand for courses and the supply in various job markets. For this reason, college administrators, employers, employment analysts, and others keenly follow the trends in bachelor awards.

Between academic years ending 1971 and 1986, student interest in the social and behavioral sciences and in education dropped substantially. The decline occurred over most of the period but has slowed or leveled off recently. Interest in the humanities and in the natural sciences also dropped during the period. The drop in the number of degrees conferred in the natural sciences (life sciences, physical sciences, and mathematics) was due to sharp declines in mathematics degrees which fell each year between 1971 and 1981 before turning upward.

Other fields became more popular during the period. Interest in both the computer sciences and engineering increased considerably. Business and management and other technical/professional fields * grew dramatically as well. The proportion of bachelor's degrees earned in the latter two categories combined grew from 23 to 43 percent between 1971 and 1986.

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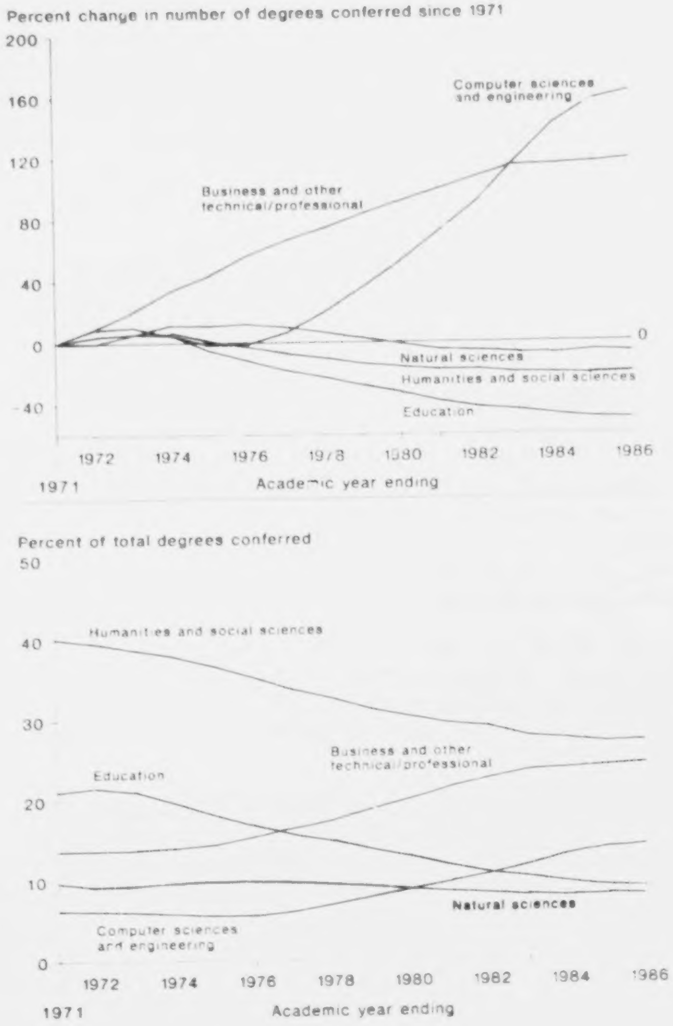
* Other technical/professional fields are: agriculture, architecture, communications and communications technologies, health sciences, home economics, law, library science, military science, parks and recreation, protective services, and public affairs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Chart 2:3 Bachelor's degrees conferred, by field of study: Academic years ending 1971–1986



SOURCE: U.S. Department of Education, National Center for Education Statistics, surveys of degrees conferred, various years.

Indicator 2:4 Advanced degrees conferred, by field

- **The number and proportion of master's degrees conferred in the humanities, social and behavioral sciences, natural sciences, and education were lower in 1986 than in 1971, whereas those in the computer sciences and engineering, business, and other technical/professional fields were substantially higher.**
- **At the doctoral level, the number and proportion of degrees conferred in the natural sciences and in engineering were lower in 1986 than in 1971, while the number and proportion in other fields were higher or about the same.**

Trends in students' fields of concentration provide important information on changing student interests and responses to the labor market. They may also provide clues about ongoing or future changes in the demand for faculty in different disciplines.

Since 1971, the distribution of master's degrees has shifted away from the humanities, social and behavioral sciences, and education toward business and other technical/professional fields.* The most dramatic change has occurred in the balance between education and business degrees. In 1971, education was by far the most popular field at the master's level. Since the mid-1970s, however, specialization in education has decreased, while it has grown markedly in business. As a result, by 1986, the two fields were about equally popular, each accounting for about one-quarter of all master's degrees.

Specialization in the natural sciences (life sciences, physical sciences, and mathematics) at the master's level, particularly in mathematics, declined during much of the period from 1971 to 1986. Computer and information sciences grew substantially in popularity throughout the period. Engineering gained in the 1980s following a decline in the previous decade.

The total number of doctor's degrees conferred annually changed very little between 1971 and 1986. While the number of degrees in many fields increased, there were significant declines in the natural sciences and in engineering: mathematics degrees declined 38 percent, physical sciences 19 percent, life sciences 8 percent, and engineering 6 percent.

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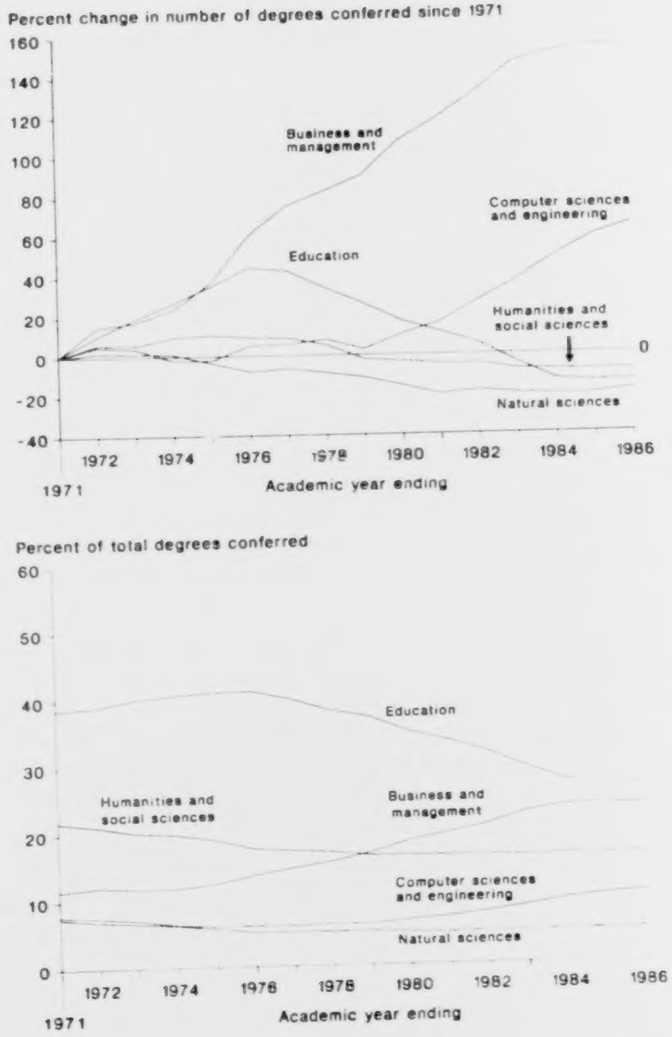
* Other technical/professional fields are: agriculture, architecture, communications and communications technologies, health sciences, home economics, law, library science, military science, parks and recreation, protective services, and public affairs.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Chart 2:4 Master's degrees conferred, by field of study: Academic years ending 1971–1986



SOURCE: U.S. Department of Education, National Center for Education Statistics, surveys of degrees conferred, various years.

A. Outcomes: Completions

Indicator 2:5 Degrees conferred, by race and ethnicity

- **Despite an increase in the young adult, black population, blacks earned fewer bachelor's, master's, and doctor's degrees in 1985 than in 1977. They did earn more first-professional degrees, however.**
- **Between the same years, whites earned fewer master's and doctor's degrees but more bachelor's and first-professional degrees.**
- **The number of degrees earned by Hispanics, Asians, and American Indian/ Alaskan Natives increased at all levels.**

The ability of our colleges and universites to attract and retain minority students is important to the Nation's success in achieving its goal of equal opportunity. Change in the number of degrees earned by minorities in relation to their population provides one measure of higher education's progress toward this goal.

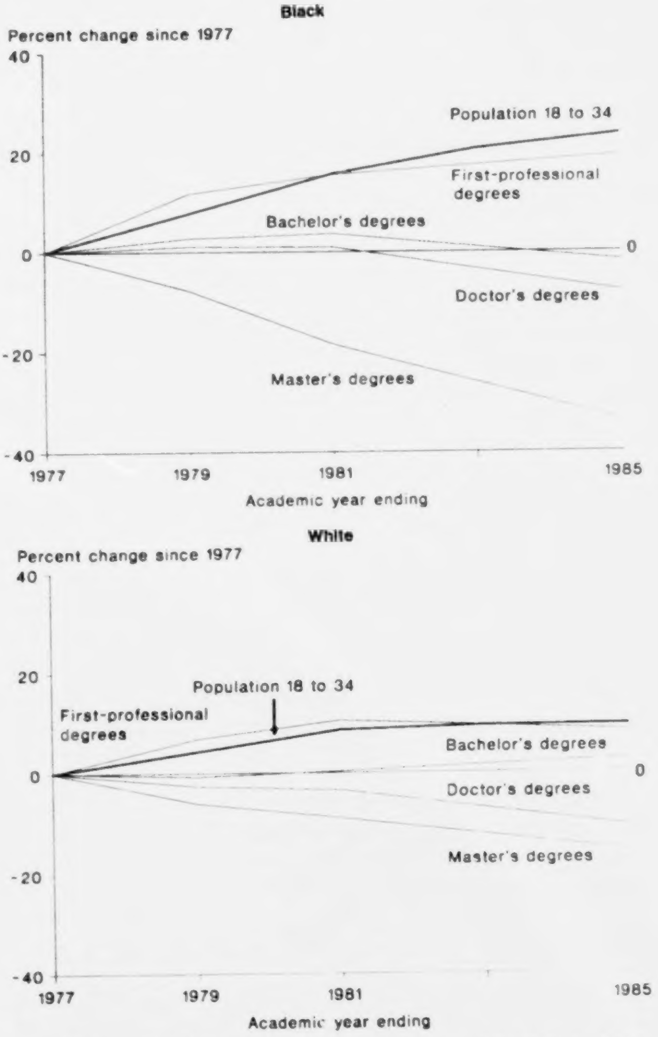
Between 1977 and 1985, changes in the number of degrees earned by blacks and whites at the various degree levels exhibited some similarities. Both groups earned fewer master's and doctor's degrees and more first-professional degrees in 1985 than in 1977. In addition, except at the master's level, men of both races earned fewer degrees at all levels, whereas women of both races earned more. Finally, among men, the declines were as sharp among whites as among blacks at all but the master's level.

Despite the similarities, there were important differences between the two racial groups. In general, growth in the young adult population (ages 18 to 34) outpaced degree growth to a much larger extent among blacks than among whites. The black young adult population grew 24 percent between 1977 and 1985, but the number of bachelor's and advanced degrees awarded to blacks fell by 2 and 27 percent, respectively. In contrast, the white young adult population increased 9 percent, while the number of bachelor's degrees awarded to whites increased 3 percent and the number of advanced degrees decreased 11 percent.

Another difference between the two racial groups is the size of the changes in degrees earned by women. The increases were smaller and the declines sharper, in percentage terms, among black than among white women.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred). U.S. Department of Commerce, Bureau of the Census, "Estimates of the Population of the United States, by Age, Sex, and Race," *Current Population Reports*, Series P-25, Nos. 917 and 1000.

Chart 2:5 Percent change since 1977 in population and number of degrees earned by blacks and whites: Selected academic years ending 1977–1985



SOURCE: U.S. Department of Education, National Center for Education Statistics and Office for Civil Rights, surveys of degrees conferred, various years. Bureau of the Census, *Current Population Reports*, Series P-25, Nos. 917 and 1000.

A. Outcomes: Completions

Indicator 2:6 Field of study, by race and ethnicity

- **The proportion of bachelor's degrees conferred in the natural sciences remained about the same during the period from 1977 to 1985 among both minority and white students.**
- **At all degree levels, engineering was generally more popular in 1985 than in 1977 among students in all racial/ethnic groups, especially among Asian students.**

The fields pursued by college students from different racial/ethnic groups affect the career opportunities open to those from different backgrounds and the racial/ethnic distribution of different occupations. One issue currently of concern is that the level of minority students specializing in science and engineering is low. According to one view, the country needs to encourage minorities to pursue studies in these fields in order to help avert a potential national manpower shortage.*

Racial/ethnic groups differ substantially in the fields they study. The most pronounced differences from 1977 to 1985 were in the proportion of degrees earned in the natural sciences (life sciences, physical sciences, and mathematics), engineering, and education.

The natural sciences and engineering were much more popular among Asian students than among the students of any other racial/ethnic group during the 1977 through 1985 period. At all levels, the proportion of degrees conferred in engineering was generally higher in 1985 than in 1977 among students in all racial/ethnic groups. This growth was low to moderate, however, among all but Asian students. In contrast, the natural sciences did not become more popular during the period in any of the groups.

With few exceptions, the field of education declined in popularity among students at all degree levels, regardless of their race/ethnicity. The declines were steepest among black students. Despite the large drops, education remains by far the most popular field among all non-Asian minority groups at the master's level.

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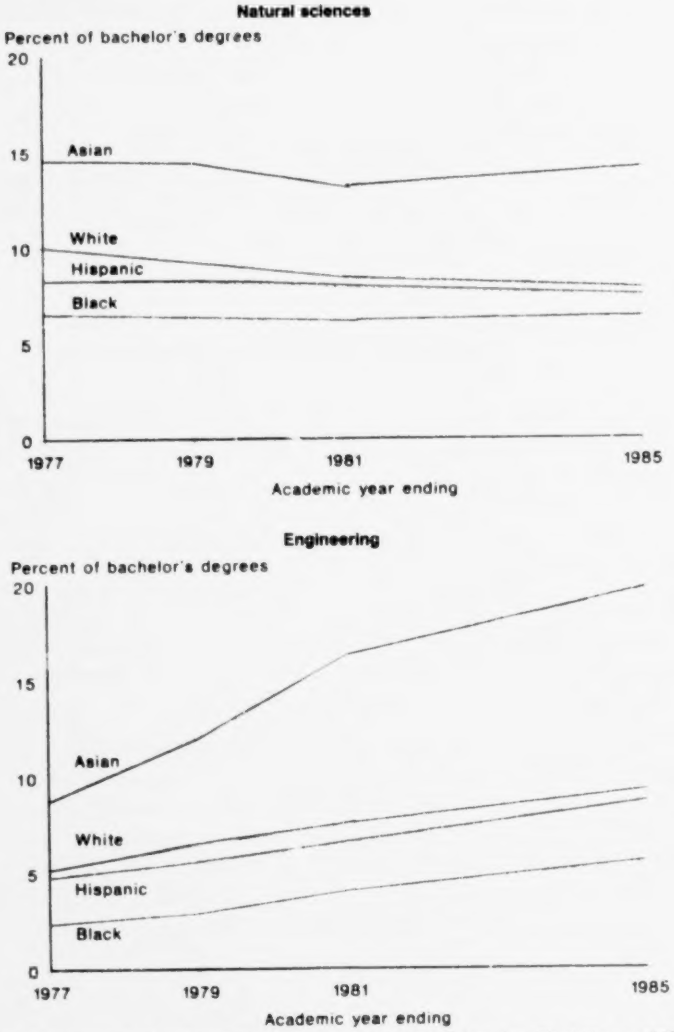
* U.S. Task Force on Women, Minorities and the Handicapped in Science and Technology, *Changing America: The New Face of Science and Engineering*, Interim Report, September 1988.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred).

Chart 2:6 **Percent of bachelor's degrees conferred in the natural sciences and in engineering, by race and ethnicity: Selected academic years ending 1977–1985**



SOURCE: U.S. Department of Education, National Center for Education Statistics and Office for Civil Rights, surveys of degrees conferred, various years.

Indicator 2:7 Degrees earned by women

- **The proportion of associate and bachelor's degrees earned by women increased from 43 percent at each level in 1971 to 56 and 51 percent, respectively, in 1986.**
- **The proportion of advanced and professional degrees earned by women also increased between those years. Growth was particularly dramatic at the doctor's and first-professional levels.**
- **By 1986, women were earning more than one-half of the associate degrees, about one-half of the bachelor's and master's degrees, and about one-third of the doctor's and first-professional degrees.**

Historically, women have earned substantially fewer degrees than men. A concern is whether and how much the differences between men and women have narrowed or disappeared at the various degree levels.

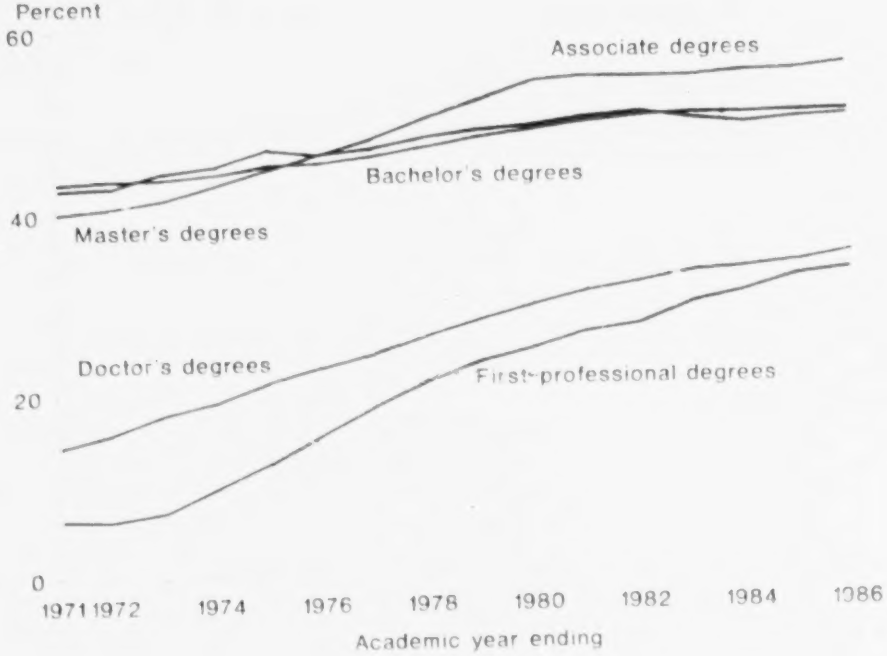
Women have increased their participation at all degree levels since 1971. Between that year and 1986, their share of associate degrees grew from 43 to 56 percent on a generally upward path. Much of this growth took place in the 1970s. Their share of bachelor's and master's degrees reached the 50 percent level in 1981, up from 43 and 40 percent, respectively, in 1971. In 1986, women continued to earn about one-half of both types of degrees.

Women also have increased their share of first-professional and doctor's degrees. In 1971, they earned only 6 percent of the first-professional degrees and 14 percent of the doctor's degrees. Since then, they have received an increasing proportion of these degrees, earning about one-third of each type in 1986.

Much of the growth in the women's share of degrees resulted from substantial increases in the number of degrees earned by women, but some occurred because of decreases in the number of degrees earned by men. At the bachelor's level, for example, the number of women earning degrees rose throughout the 1971 through 1986 period. In comparison, the number of men earning degrees at that level peaked in 1974 and then declined until 1981. Although the number of degrees earned by men has increased since then, it remains below the level of the early 1970s.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, 1988 (based on the HEGIS survey Degrees and Other Formal Awards Conferred).

Chart 2:7 **Percent of degrees earned by women, by degree level: Academic years ending 1971–1986**



SOURCE: U.S. Department of Education, National Center for Education Statistics, surveys of degrees conferred, various years.

Indicator 2:8 Fields of study among women

- **Women earned an increasing share of bachelor's and master's degrees awarded in business and management between 1971 and 1986.**
- **During that period, women made solid gains in other fields as well, including the life, physical, and computer sciences.**
- **In general, women increased their presence in most major fields at all degree levels over those years.**

Since the early 1970s, women have increased their share of degrees at all levels. An important question is whether the gains have occurred in all fields of study or have been more pronounced in some than in others. A related question is whether women have increased their presence in fields where they were previously underrepresented or primarily in fields that traditionally have attracted more women.

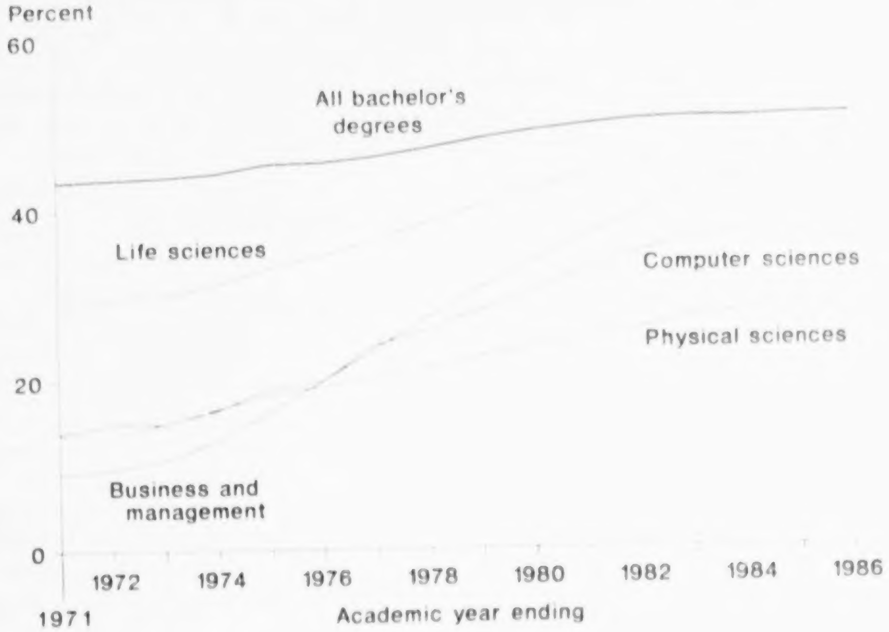
Between 1971 and 1986, women increased their share of degrees in nearly all major fields at all degree levels. Most of these gains occurred because women were earning more degrees in the fields. Some of the gains, such as in mathematics, however, were largely the result of substantial declines in the number of degrees awarded to men.

The most notable gain, reflecting sizable increases in both the number of degrees awarded to women and women's preferences for the field, was in business and management. Over the 1971 through 1986 period, the proportion of business and management degrees awarded to women rose from 9 to 46 percent at the bachelor's level and from 4 to 31 percent at the master's level.

Women made important inroads in the life, physical, and computer sciences, as well. At all levels, they received a larger number and share of the degrees conferred in each of these fields in 1986 than they did in 1971. Despite substantial gains, however, women have not reached parity with men in many scientific and technological fields. They continue to earn a much smaller proportion of the degrees conferred at all levels in the physical and computer sciences, engineering, and, except at the bachelor's level, mathematics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, 1988 (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Chart 2:8 Percent of bachelor's degrees in selected fields earned by women: Academic years ending 1971–1986



SOURCE: U.S. Department of Education, National Center for Education Statistics, surveys of degrees conferred, various years.

Indicator 2:9 Degrees earned by foreign students

- **From 1977 to 1985, foreign students earned an increasing proportion of the bachelor's and graduate degrees awarded by American colleges and universities.**
- **The presence of foreign students is most pronounced at the master's and doctor's levels, particularly in the natural and computer sciences and engineering, where they earned about 1 out of every 4 degrees in 1985.**

The size of the foreign student population in the Nation's colleges and universities is significant for several reasons. It can affect enrollment levels and, in turn, influence the amount and allocation of material, personnel, and financial resources. It may also affect U.S. economic competitiveness, depending on whether students stay in this country to work or whether they return to their homelands after completing their studies.

Between academic years ending 1977 and 1985, the number of foreign students [1] graduating from American higher education institutions and the proportion of degrees awarded to these students rose at all degree levels. Much of the increase occurred in the natural sciences, especially mathematics, the computer sciences, and engineering, but considerable growth took place in nonscientific fields, as well. In contrast to foreign students, the number of Americans receiving master's and doctor's degrees declined, and the number receiving baccalaureate degrees increased comparatively little.

An important question in assessing the economic impact of foreign students is whether they return to their countries after receiving their degrees or remain in this country for further study or work. Of those earning doctorates in the natural and computer sciences and engineering in 1987, 36 percent had definite plans for employment or postdoctoral study in the United States.[2] Ten years earlier, 28 percent had had such plans.

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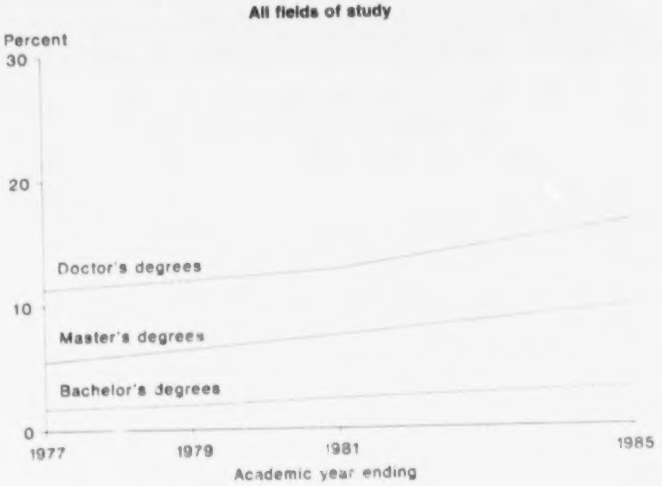
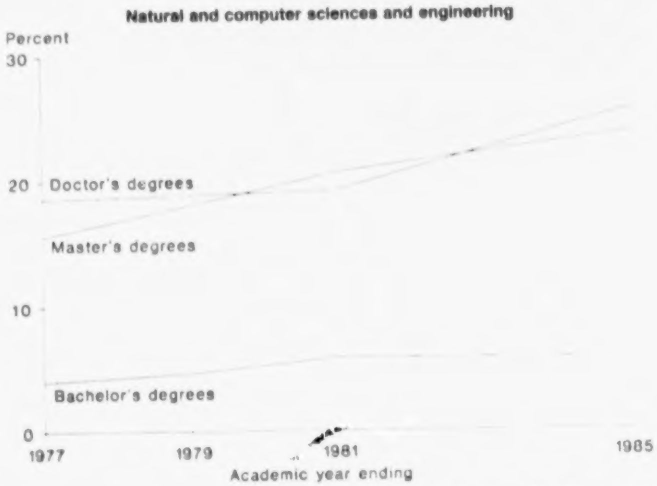
[1] Foreign students are non-United States citizens holding temporary visas.

[2] Information on postgraduation plans is available only for doctorate recipients.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred). National Science Foundation, *Science and Engineering Doctorates: 1960–86, Early Release of Summary Statistics on Science and Engineering Doctorates 1987*, and unpublished tabulations (based on the Survey of Earned Doctorates).

Chart 2:9 Percent of degrees earned by foreign students in American colleges and universities: Selected academic years ending 1977–1985





SOURCE: U.S. Department of Education, National Center for Education Statistics, surveys of degrees conferred, various years.

Indicator 2:10 Earnings of young adults, by educational attainment

- **Among young adults working year-round and full-time, the college-educated generally earned more annually during the 1978 to 1988 period than those who had completed only 4 years of high school, regardless of race or sex.**
- **The earnings advantage of the college-educated was more pronounced among those who had completed 4 or more years of college than among those who had completed only 1-3 years.**
- **Among those with 4 years of college, the earnings advantage was most substantial among women and blacks.**

Numerous studies have examined the effects of education on an individual's earning potential.[1] There is considerable disagreement about how education affects earnings, how great the effect is, and the influence of other factors, such as innate ability and socioeconomic status. Still, most agree that there is a link between the amount of education one receives and one's earnings.

From 1978 to 1988, college-educated young adults, regardless of race or sex, earned more than young adults with only a high school education.[2] This earnings gap was greater for those who had completed 4 or more years of college than for those who had completed 1-3 years. To illustrate, in 1988, whites with 4 or more years of college earned 41 percent more than whites with 4 years of high school, whereas those with 1-3 years of college earned only 12 percent more.

The earnings advantage of college-educated young adults with at least 4 years of college was most pronounced among women and among blacks. College-educated men and whites also had an earnings advantage, but it was less prominent.

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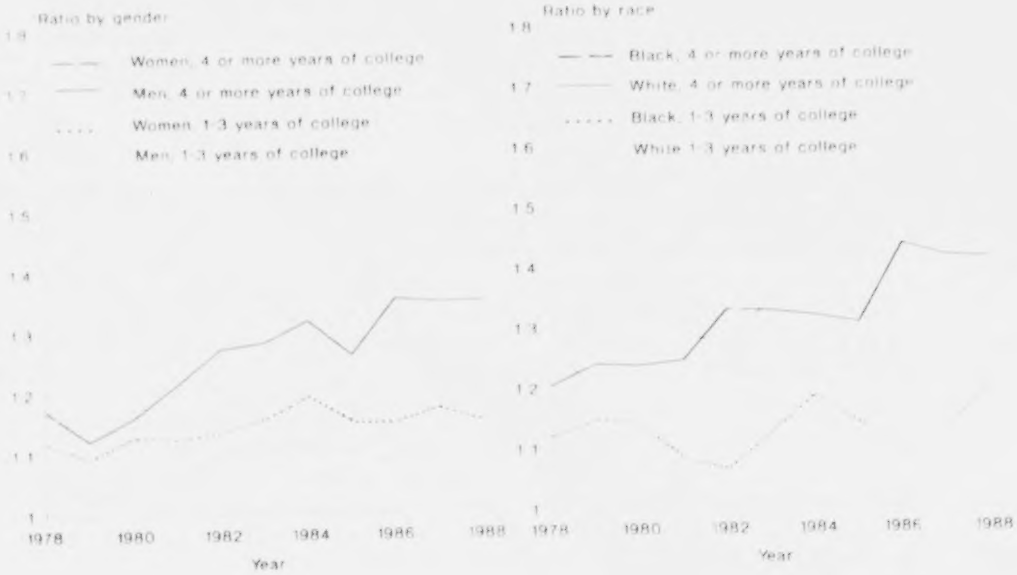
[1] E.A. Hanushek, "The Economics of Schooling: Production and Efficiency in Public Schools," *Journal of Economic Literature 24*, (1986): 1141-1177.

[2] The young adults discussed here were 25- to 34-year-old black, white, male, and female year-round, full-time workers.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years, unpublished tabulations.

Chart 2:10 Ratio of earnings of year-round, full-time workers, 25–34 years old, with college to earnings of those with 4 years of high school: 1978–1988



SOURCE: Bureau of the Census, *Current Population Reports*, March of various years, unpublished tabulations.

Indicator 2:11 Higher education spending on research and development

- **Doctorate-granting institutions spent increasing amounts (in constant dollars) on research and development (R&D) between fiscal years 1972 and 1987.**
- **The Federal Government remains the primary source of R&D expenditures at doctorate-granting institutions, but during the 1980s its role has been declining.**

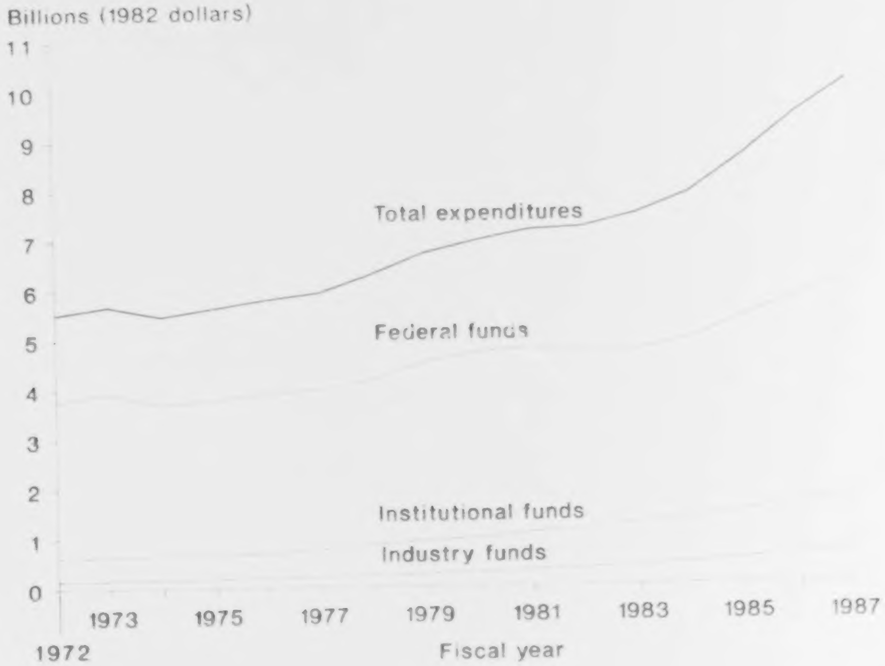
The Nation's institutions of higher education are an important source of new scientific and technological knowledge. Much of this knowledge comes from doctorate-granting institutions, which spend nearly all the R&D funds available to higher education. The condition of the R&D effort at those institutions is, therefore, viewed by many as vital to the Nation's economic health and its competitiveness in world markets.

Between fiscal years 1972 and 1987, constant dollar R&D expenditures at doctorate-granting institutions increased by more than 80 percent. Growth occurred throughout most of the period, with a slight decline in 1974, and a slowdown in the early 1980s. The rate of growth in 1987 was lower than in the previous 2 years but higher than that for any other year during the 1972 through 1987 period. The institutions' share of total U.S. R&D spending increased during the mid- to late-1980s, regaining from declines earlier in the decade.

Federal funds remain by far the largest source of R&D expenditures at doctorate-granting institutions. Although these funds increased 63 percent, after inflation, during the 1972 through 1987 period, the relative importance of Federal funds has dropped. Federal funds constituted 61 percent of the R&D expenditures at these institutions in 1987, down from 68 percent in 1972. Over the same period, industry funds increased from 3 to 6 percent and institutional funds from 12 to 18 percent of R&D expenditures.

SOURCE: National Science Board, *Science & Engineering Indicators—1987*, 1987. National Science Foundation, *Early Release of Summary Statistics on Academic Science/Engineering Resources*, October 1988 (based on Scientific and Engineering Expenditures at Universities and Colleges survey, various years).

Chart 2:11 **Research and development expenditures, in constant 1982 dollars, at doctorate-granting institutions, by source of funds: Fiscal years 1972–1987**



SOURCE: National Science Foundation, Scientific and Engineering Expenditures at Universities and Colleges survey, various years.

B. Resources

B. Resources: Fiscal Resources

Indicator 2:12 Revenues of colleges and universities

- **State and local appropriations are the largest source of funds for public institutions (58 percent) but a negligible source (1 percent) for private institutions.**
- **Private institutions depend primarily on tuition and fees as a source of revenue (53 percent).**

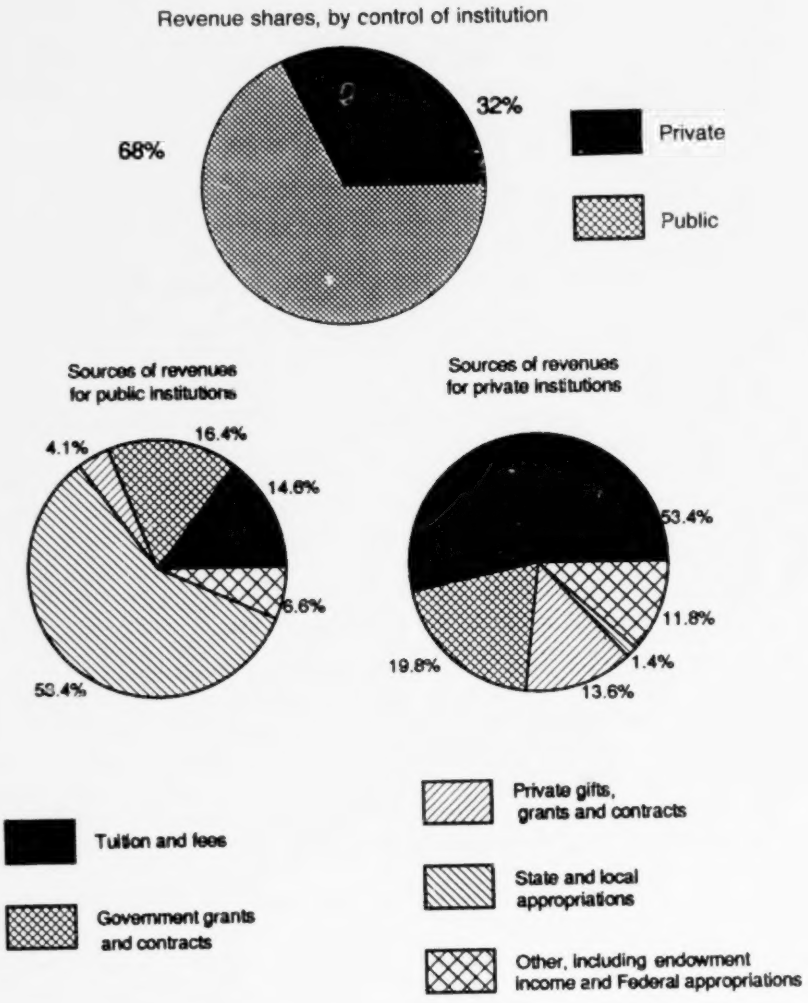
This country contains more than 3,000 colleges and universities—from community colleges, to liberal arts colleges, to professional schools, to research universities. About 1,500 of these institutions are governed by localities or by States primarily to serve their populations. Some 1,800 more are under private control, some religious and some independent. All institutions of higher education are supported by the same array of funding sources, but to widely varying degrees, depending upon whether they are publicly or privately controlled. These sources in turn are affected by a number of factors, including fluctuations in the economy and perceptions of whether investments, be they in the form of taxes, gifts, or tuition payments, are yielding expected benefits to individuals or to the country.

For public institutions, State and local appropriations were by far the most important source throughout the period from 1976 to 1986. The second most important source in 1986 was government grants and contracts, most of which came from Federal sources. In the early years of the period, however, tuition and fees had been the second largest source of revenue for public institutions.

Private institutions relied primarily on tuition and fees and secondarily on government grants and contracts during the 1976 through 1986 period. These institutions also derived a large share of their income from nongovernmental gifts, grants, and contracts (14 percent) in 1986.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS surveys Financial Statistics of Institutions of Higher Education, various years, and Fall Enrollment in Colleges and Universities, various years).

Chart 2:12 Shares and sources of revenues for public and private institutions of higher education: Fiscal year 1986



SOURCE: National Center for Education Statistics, *Digest of Education Statistics, 1988.*

Indicator 2:13 Allocation of expenditures per student and tuition levels

- **Expenditures for instruction, research, and administration, as well as undergraduate tuition charges, rose considerably more than inflation during the mid-1980s at both public and private universities.**
- **Since the early 1980s, tuition has increased proportionately more than instructional expenditures at all types of public and private colleges and universities.**

Rising college tuition is of considerable concern to policymakers, educators, and students and their families. Why tuition continues to climb is a hotly debated subject. Information on where colleges and universities spend their money and how expenditure patterns have changed in relation to tuition enhances the public debate.

With few exceptions, expenditures per full-time-equivalent (FTE) student, after inflation, were higher in academic year 1985–86 than in 1976–77 at all types of public and private, nonprofit institutions.* Much of the rise has occurred since the early 1980s. Administrative expenditures grew substantially, particularly at private universities, where they were 39 percent higher in 1986 than in 1977. Expenditures on instruction also grew between those years, but less than administrative expenditures. At universities and other 4-year institutions, especially public ones, expenditures on research, a major function of higher education, also were higher in 1986 than in 1977. Expenditures for scholarships and fellowships were up sharply at all types of private institutions. They increased comparatively little at public universities, however, and actually declined at other types of public institutions.

Following declines in the late 1970s, average undergraduate tuition and fees, adjusted for inflation, rose sharply at all types of public and private institutions during the first half of the 1980s. They grew proportionately more than comparable increases in instructional expenditures but, except at 2-year institutions, less than administrative expenditures. At all types of private institutions, expenditures for scholarships and fellowships grew proportionately more than tuition charges. This was not the case at public institutions, however.

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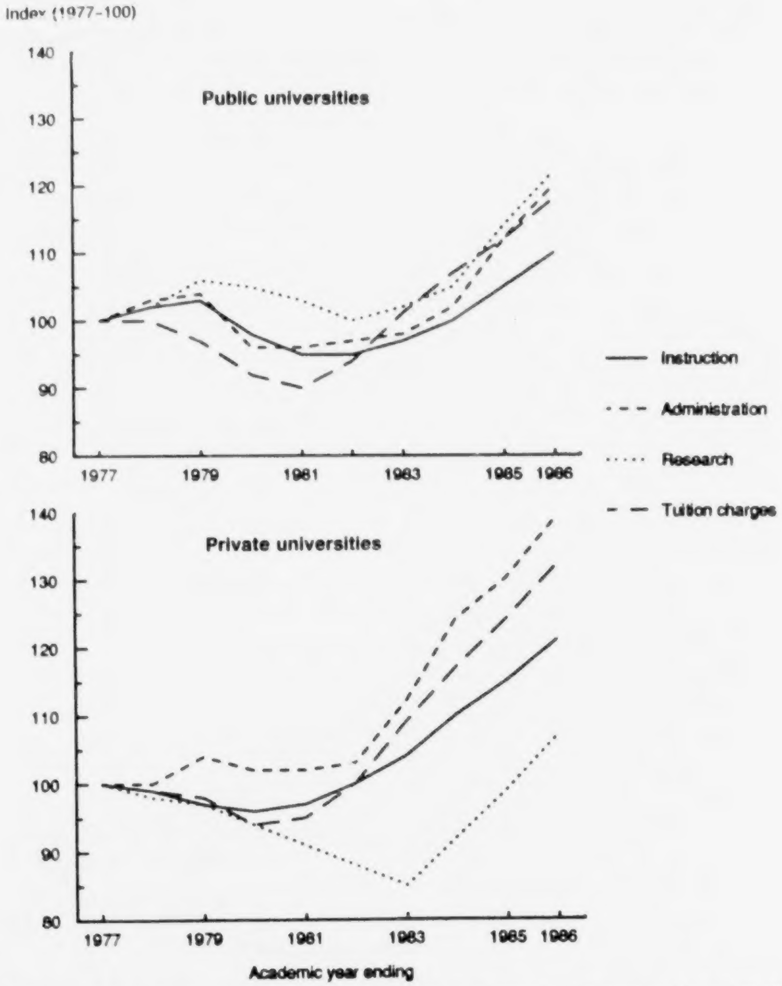
* This indicator presents expenditure data in indexed form where 1977 = 100. For actual dollars spent, see source described below.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Recent Trends in Higher Education Finance, 1976 to 1985–86," *Higher Education Administrative Costs: Continuing the Study* (based on the HEGIS surveys Financial Statistics of Institutions of Higher Education, Institutional Characteristics of Colleges and Universities, and Fall Enrollment in Colleges and Universities), 1988.

Chart 2:13 Index of selected expenditures per full-time-equivalent student and average undergraduate tuition charges (in constant dollars) at public and private universities: Academic years ending 1977–1986



SOURCE: National Center for Education Statistics, surveys of Institutional Characteristics of Colleges and Universities, Fall Enrollment in Colleges and Universities, and Financial Statistics of Institutions of Higher Education, various years.

Indicator 2:14 Faculty salaries, by academic rank

- **During most of the 1970s and into the early 1980s, college faculty salaries at both public and private institutions steadily lost ground to inflation.**
- **Since the early 1980s, faculty salaries have consistently outpaced inflation, but, by 1986, salary increases had not been large enough to restore purchasing power to early 1970s levels.**

College faculty salaries are of interest for two reasons. First, they are a significant component of college and university expenditures. Second, they can affect higher education's ability to attract and retain qualified instructional personnel.

The salaries of full, associate, and assistant professors [1] more than doubled between academic years ending 1972 and 1986. After adjusting for inflation, however, they declined substantially. Between the peak in 1973 and the low point in 1981 or 1982, their purchasing power dropped by a little over 20 percent. After that, inflation-adjusted salaries climbed steadily upward. However, by 1986, the latest year for which data are available, the increases had not been big enough to compensate for earlier losses. The trends outlined here occurred at public as well as private institutions and at universities, other 4-year, and 2-year institutions.

To get a perspective on changes in college faculty salaries, it is useful to compare them with changes in the salaries of other professions. During the 14-year period from 1971–72 to 1985–86, particularly in the late 1970s and early 1980s, the salaries of faculty increased more slowly than those of persons in six other professional occupations employed in medium-sized and large private firms.[2] The average salary of a full professor, for example, increased 130 percent over the period, whereas the average salary of an attorney increased 174 percent.

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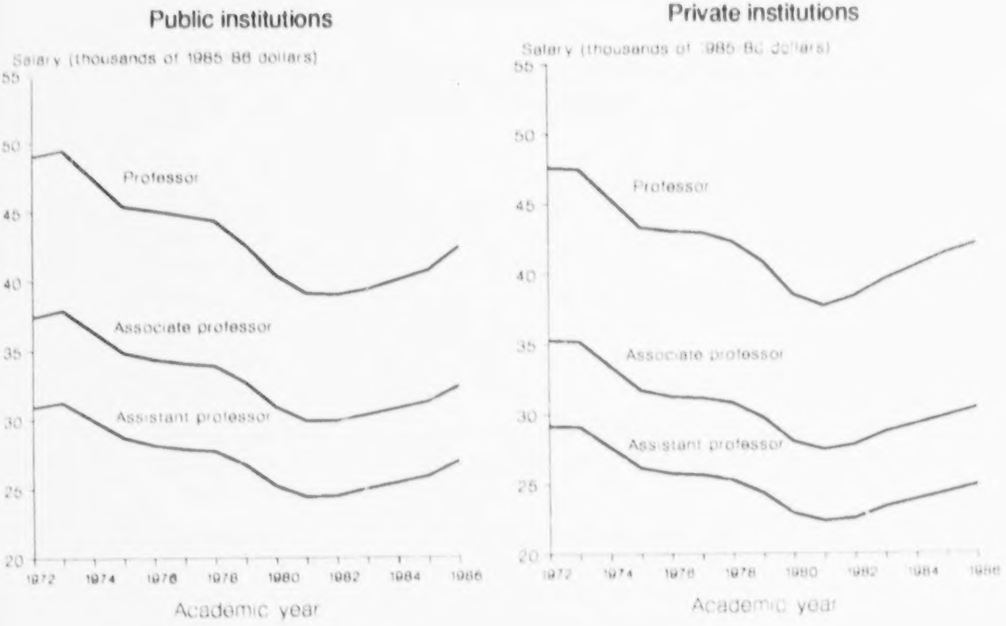
[1] This indicator displays salary changes between academic years 1971–72 and 1985–86 for three categories of full-time instructional staff on 9- or 10-month contracts—full professors, associate professors, and assistant professors.

[2] The occupations are: accountant, auditor, attorney, chief accountant, chemist, and engineer. Medium-sized and large firms are those employing 50 or more workers.

SOURCE: U.S. Department of Education, National Center for Education Statistics, the HEGIS survey Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty, various years. U.S. Department of Labor, Bureau of Labor Statistics, *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1982* (Bulletin 2145) and *March 1986* (Bulletin 2271).

Chart 2:14 Trends in average faculty salaries, by academic rank and control of institution: Academic years ending 1972–1986



SOURCE: National Center for Education Statistics, survey of *Salaries, Tenure and Fringe Benefits of Full-Time Instructional Faculty*, various years.

Indicator 2:15 New doctorates with jobs in higher education, by field

- **The proportion of new doctorate recipients with definite employment commitments in the United States who had jobs in American colleges and universities declined between 1971 and 1981. After 1981, the proportion with such jobs remained generally stable.**
- **The size and pattern of the declines varied depending upon the field of study. They were greatest in the social and behavioral sciences, natural sciences, and education.**

The infusion of new talent into a profession is considered important to its intellectual vitality and growth. The tightening of the academic labor market in recent years has raised several questions related to this issue. One relates to the age distribution and experience of the labor pool available to replace retiring faculty. Another concerns the vitality of the basic research program in the Nation's universities. Trend data on newly educated doctoral recipients in different fields who take jobs in colleges and universities provide information relevant to the discussion of these matters.

Among new doctorates with definite employment commitments in the United States upon completion of their degrees, the proportion with jobs in colleges and universities fell during most of the period from 1971 to 1981 and then leveled off.*

The social and behavioral sciences, followed by the natural sciences and education, experienced the greatest drop in the proportion of new doctorates entering the academic labor market between 1971 and 1981. In contrast to most fields, this downward trend continued in the social and behavioral sciences during much of the 1980s. Natural scientists were more likely to shift to industry than to other employment sectors, while educators gravitated toward elementary and secondary education. Social and behavioral scientists, on the other hand, favored nonprofit organizations.

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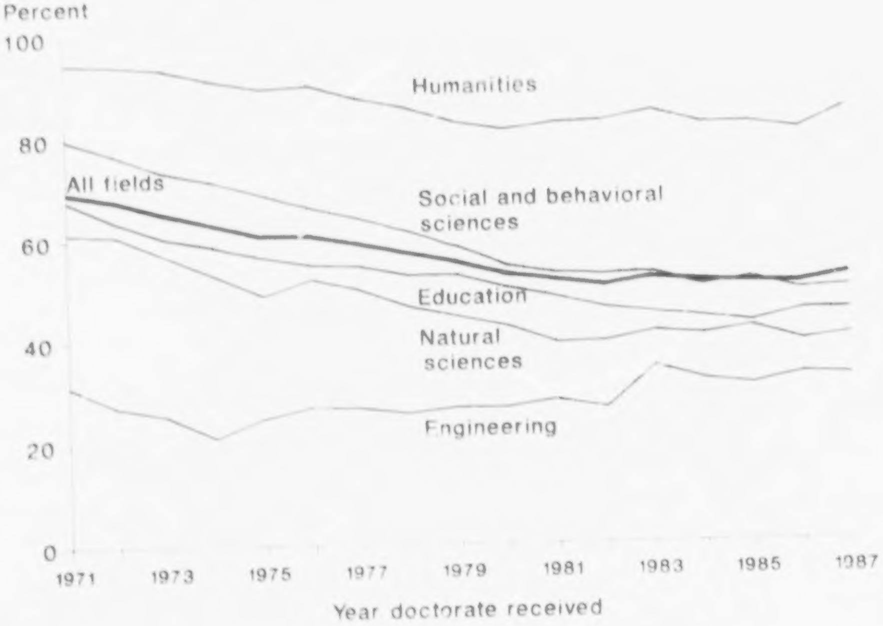
* A "definite commitment" is defined as a signed contract, acceptance of a formal offer, etc. This indicator pertains only to employment commitments in the United States. Jobs in higher education include those in teaching, research, administration, and other areas but not postdoctoral fellowships.

SOURCE: National Research Council, Doctorate Records File, special tabulations (based on the Survey of Earned Doctorates).

Chart 2:15 **Percent of new doctorates with definite employment plans in the United States who had commitments at colleges and universities, by field of study: 1971–1987**



SOURCE: National Research Council, Doctorate Records File.

C. Context

C. Context: Student Characteristics

Indicator 2:16 College and university enrollment, by type and control of institution

- **Total enrollment in colleges and universities increased by nearly 4 million (45 percent) between 1970 and 1983 and then increased by only 4 percent from 1983 to 1988.**
- **Between 1970 and 1983, enrollment growth was greatest in 2-year institutions, more than doubling in size from 2.2 million to almost 4.7 million students.**

Colleges and universities are regularly grouped by the predominant length of programs they offer, 2-year or 4-year, and whether they operate under public or private control. Institutions in each category address somewhat different student needs. Enrollment trends in these various types of institutions may indicate changing demand for the different types of services offered.

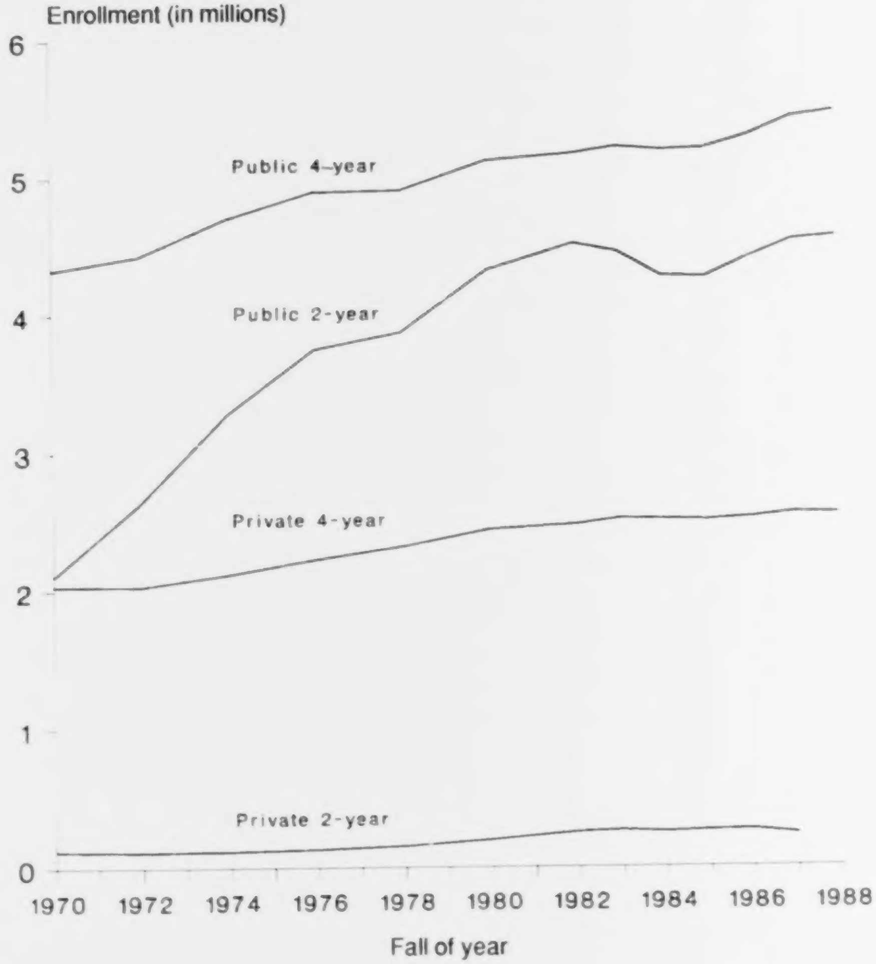
Between 1970 and 1983, enrollment in colleges and universities rose by 45 percent, from 8.6 million to 12.5 million. While the number of students at 4-year institutions grew by 22 percent, enrollment in 2-year institutions grew by 112 percent, reflecting, among other things, an increasing interest in higher education by the nontraditional, older, and part-time student. Public institutions, which enroll three times as many students as private institutions, increased their enrollments at a faster rate than private ones. Since 1983, enrollments at all types of institutions have been relatively steady, but in 1987 and 1988 enrollments were up slightly from 1985 levels.

Enrollments may also be measured in terms of full-time-equivalent students (FTE). For private schools, percent changes in FTE enrollments during the 1970s and early 1980s are not considerably different from the actual enrollments presented here. For public 2-year schools, however, the 1970–1983 enrollment increase in FTEs was only 85 percent; the headcount increase was 112 percent. The difference reflects the large number of students attending part-time (see *Indicator 2:17*).

In 1988, public institutions accounted for 78 percent of all higher education enrollment, and 2-year colleges accounted for 36 percent of all such enrollment.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the IPEDS survey Fall Enrollment in Institutions of Higher Education, various years); and "National Estimates of Higher Education Statistics: 1988," *Early Estimates*, December 1988.

Chart 2:16 Trends in college and university enrollment, by type and control: Fall of selected years 1970–1988



SOURCE: National Center for Education Statistics, *Digest of Education Statistics, 1988.*

C. Context: Student Characteristics

Indicator 2:17 Selected characteristics of students in higher education

- **Between 1970 and 1988, the proportion of part-time students in institutions of higher education increased from 32 to an estimated 43 percent.**
- **The proportion of women enrolled also rose during that time from 41 to 54 percent.**
- **The proportion of students 25 years old or older rose from 28 percent in 1972 to 39 percent in 1986.**

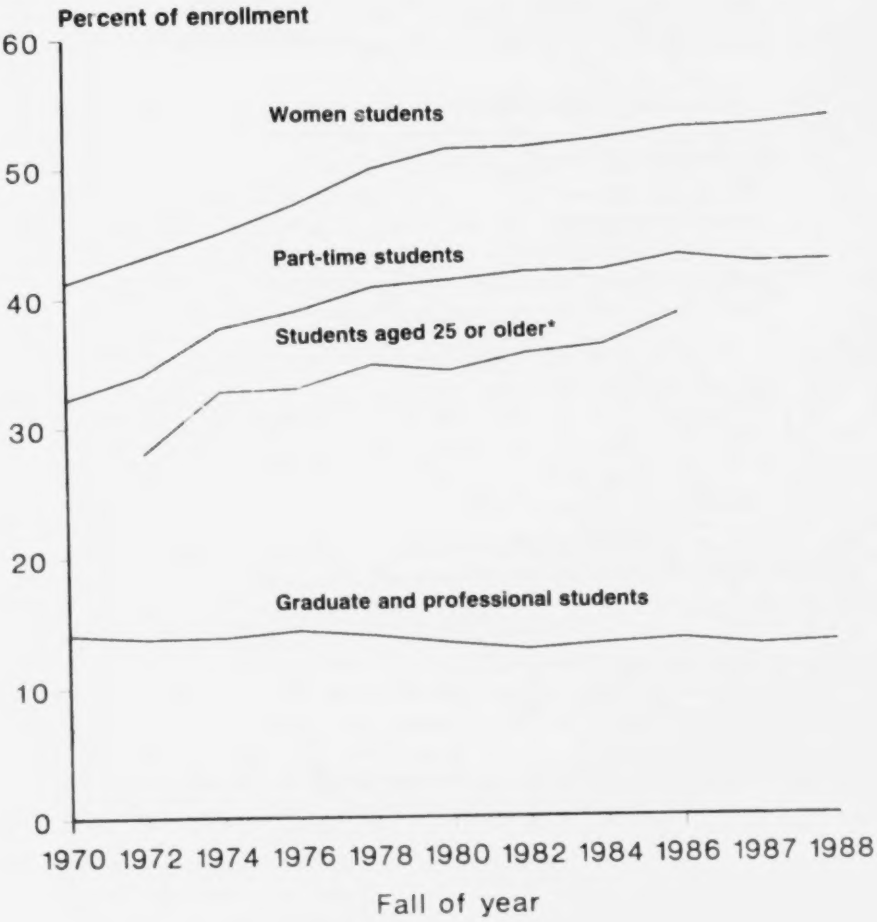
Changes in the composition of the enrollment in higher education signal changes in the larger society. For example, enrollment changes may reflect evolving needs of the labor force or a shift in the interest or ability of individuals to attend higher education.

In 1970, the "typical" college student was a male undergraduate between the ages of 18 and 24 attending full time. From 1970 to 1988, total enrollment in higher education increased substantially. But this increase was not uniform for all groups of students. While the number of all students grew, gains were proportionally greater for part-time students, women students, and older students. However, in that time, the proportion of graduate and professional students changed little. As a result of these factors, the "typical" college student in 1988 was a female undergraduate, with an increasing likelihood that she was over 25 years old, and attending part-time.

NOTE: Data for this indicator come from an NCES survey of all colleges and universities. Therefore, the enrollment figures differ somewhat from indicators where data from the Bureau of the Census survey of households are used.

SOURCES: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years, (based on an NCES survey Fall Enrollment in Colleges and Universities, various years); "National Estimates of Higher Education Statistics: 1988," *Early Estimates*, December 1988. U.S. Department of Commerce, Bureau of the Census, "School Enrollments—Social and Economic Characteristics of Students," October, various years, *Current Population Reports*, Series P-20; and unpublished tabulations.

Chart 2:17 Trends in higher education enrollment for women, part-time students, students aged 25 or older, and graduate and professional students: Fall of selected years 1970–1988



* Data for 1970, 1987, and 1988 not available.

SOURCE: National Center for Education Statistics, *Digest of Education Statistics, 1988*. Bureau of the Census, *Current Population Reports*, various years.

C. Context: Student Characteristics

Indicator 2:18 College enrollment, by selected age groups

- **Between 1980 and 1986, college enrollment increased 9 percent, while the 18- to 24-year-old population decreased 8 percent.**
- **Rises in the enrollment rates of 18- to 24-year-olds, and of persons aged 25 and older were two factors contributing to the enrollment increase.**

College education in the United States has shown enormous growth in the past 40 years. In part, this growth reflects the 20th century need of business, industry, and government for a highly skilled and educated work force. Since 1950, enrollment has swelled by over 400 percent, while the number of institutions rose almost 60 percent.[1] Throughout the past decade, however, many analysts and college administrators have expressed concern that the 1980s would be a period of declining enrollment in college education. Some analysts saw in the shrinking population of 18- to 24-year-olds evidence of coming decreases in enrollment.[2]

Contrary to these fears, although the 18- to 24-year-old population declined 7.8 percent between 1980 and 1986, total enrollment of 18- to 24-year-olds actually increased 2.4 percent. A modest increase in their participation rate (from 24.7 percent to 27.4 percent) had helped offset the decline in the age group. Without this increase in participation, enrollment in 1986 would have been 734,000 below the actual figure of about 7.4 million.[3]

The rise in college enrollment in the 1980s was also due to more older students who enrolled to prepare for career changes, to upgrade knowledge for current positions, or for enjoyment. In 1980, 2.9 percent of the population aged 25 years and over were enrolled in higher education. Between 1980 and 1986, the population in this age group increased by 12.3 percent. Had the same percentage of this age group continued to enroll in higher education, the number of students would have grown by approximately 475,000. However, a small rise in the participation rate of this population, from 2.9 to 3.2 percent, brought the enrollment increase to about 878,000. This population is growing, and an increasing number of students may come from this age group.

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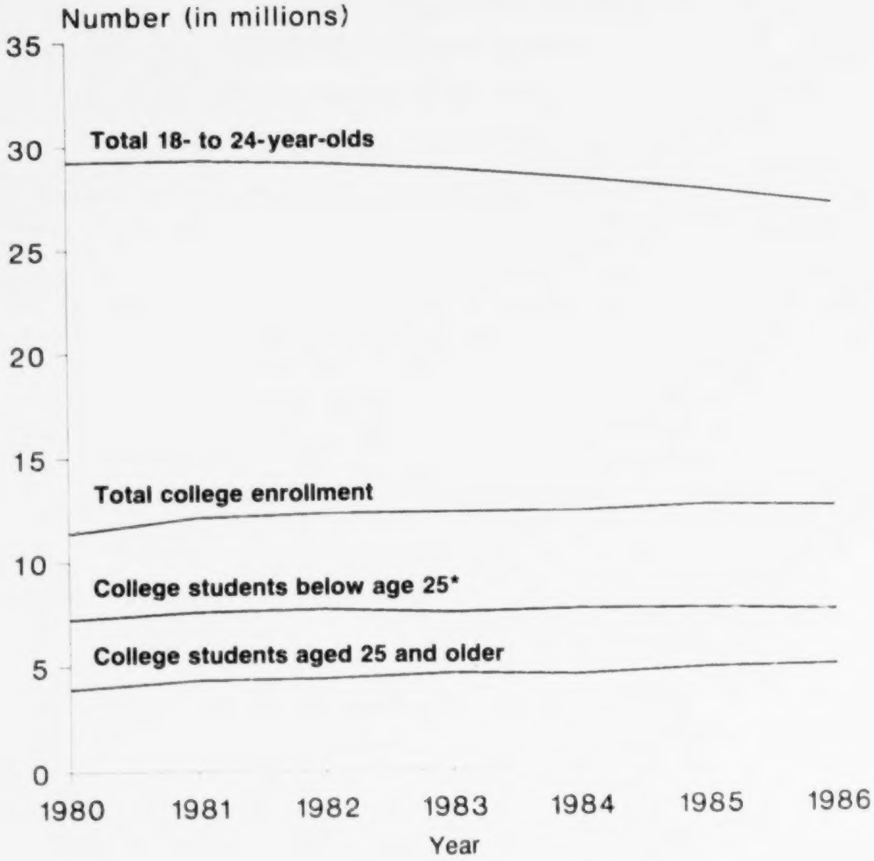
[1] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988*

[2] F.E. Crossland, "Learning to Cope with a Downward Slope," Change, July-August 1981; and Carnegie Council on Policy Studies in Higher Education, *Three Thousand Futures*. (San Francisco: Jossey-Bass, 1980).

[3] Data for this indicator come from a sample survey of households conducted by the Bureau of the Census. Therefore, the data differ somewhat from those used in indicators derived from the NCES surveys of the universe of colleges and universities.

Chart 2:18 **Trends in college enrollment, by age and number of 18- to 24-year-olds: 1980–1986**



* Below age 25 includes a few students 14 to 17.

SOURCE: Bureau of the Census, *Current Population Reports*, various years

TEXT SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988*. U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students, October [various years]"; *Current Population Reports*, Series P-20; and unpublished tabulations.

Indicator 2:19 Enrollment patterns in higher education, by race and ethnicity

- **Among 18- to 24-year-olds, participation rates for blacks and Hispanics in higher education are below those of whites.**
- **Participation rates among whites have increased since the mid-1970s.**
- **Black and Hispanic participation rates in the mid-1980s are higher than they were in the early 1970s.**

Equal access for all qualified youth has long been a major goal of our education system. One measure of national progress toward that goal is the participation rates [1] of various populations in higher education. Changes in participation rates may reflect many different factors, such as changes in values associated with higher education, in the ability to afford higher education, or in the quality of secondary schooling. Such changes may also alert higher education institutions to the need for altering policies or offerings.

The share of whites enrolled in higher education declined in the first half of the 1970s, then held steady until it increased through the 1980s. The proportion of black and Hispanic 18- to 24-year-olds enrolled in higher education increased in the early 1970s but declined in the second half of the decade. By the mid-1980s, the rates for both groups were above those of the early 1970s.

Throughout the period, participation rates of blacks and Hispanics were lower than those of whites. Enrollment of whites between 1970 and 1980 ranged between 25 and 27 percent. Since 1983, it equalled or exceeded 28 percent. Below are the participation rates of 18- to 24-year-olds in higher education:

Year	White	Black	Hispanic [2]
1972	26	18	13
1976	27	23	20
1980	26	19	16
1986	28	22	18

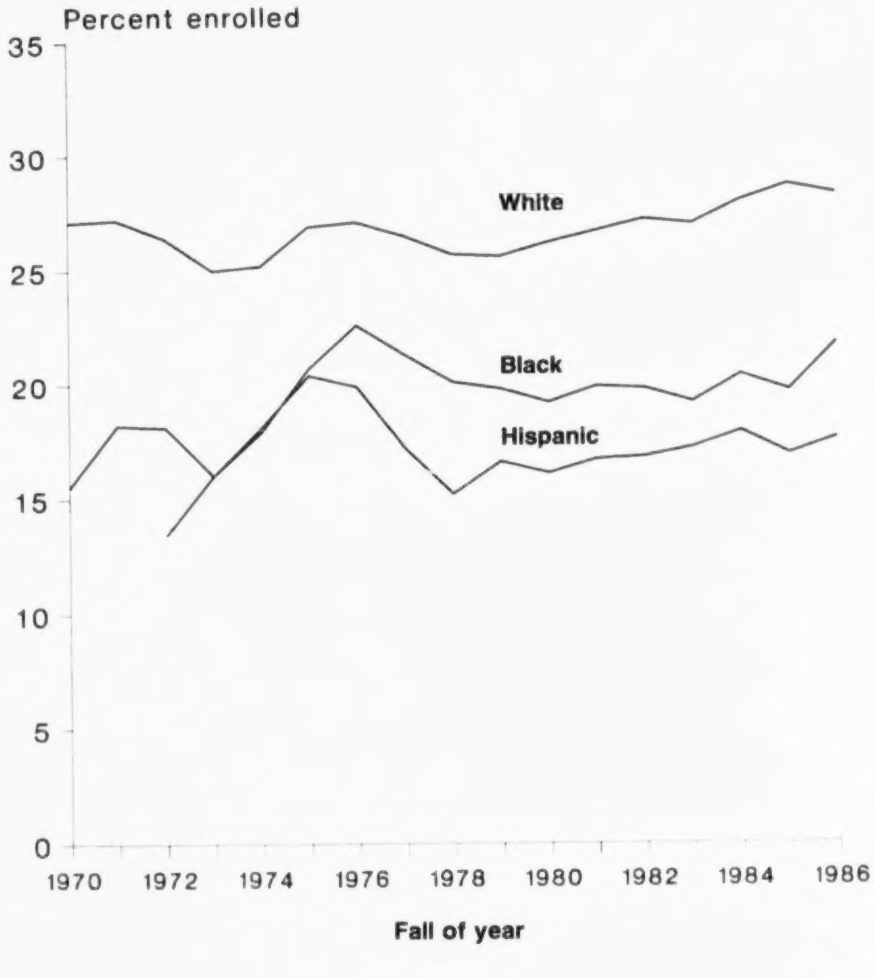
---

[1] Participation rates represent the proportion of a given subgroup enrolled in an institution of higher education. For example, the participation rate for 18- to 24-year-old blacks is calculated as 18- to 24-year-old black college students as a percent of all black 18- to 24-year-olds.

[2] Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and economic Characteristics of Students, October [various years]," *Current Population Reports*, Series P-20.

Chart 2:19 Trends in college participation rates of 18- to 24-year-olds, by race and ethnicity: Fall 1970–1986



NOTE: Hispanics may be of any race.

SOURCE: Bureau of the Census, *Current Population Reports*, various years.

A. Tables and Supplemental Notes

Indicator 1:1

Table 1:1-1 Average reading proficiency of students in grades 3, 7, and 11, by selected characteristics: 1986

Characteristic	Average reading proficiency *		
	Grade 3	Grade 7	Grade 11
Total	38.1	48.9	56.1
Race/ethnicity			
White	39.8	50.3	57.3
Black	33.4	45.2	51.5
Hispanic	33.2	44.4	51.3
Region			
Northeast	39.1	50.7	57.4
Southeast	37.2	48.1	54.8
Central	39.3	49.0	56.5
West	36.9	48.0	55.4
Type of community			
Disadvantaged urban	31.9	43.8	51.2
Advantaged urban	41.2	51.6	59.5
Gender			
Male	37.3	47.5	54.5
Female	38.9	50.3	57.7

* The range of the reading proficiency scale is 0 to 100.

SOURCE: National Assessment of Educational Progress, *Who Reads Best? Factors Related to Reading Achievement in Grades 3, 7, and 11*, 1988.

Table 1:1–2 Percent of students at each level of written response to reading tasks, by grade: 1986

Task	Grade 3	Grade 7	Grade 11
		Percent	
Task one (story)			
Inadequate	70.0	36.7	20.8
Minimal	10.7	17.7	15.6
Satisfactory	18.5	38.1	41.3
Elaborated	0.8	7.5	22.3
Task two (social studies)			
No comparison	69.6	36.2	25.6
Unsatisfactory comparison	29.9	60.4	62.9
Minimal comparison	0.5	3.2	9.0
Satisfactory comparison	0.0	0.2	1.6
Elaborated comparison	0.0	0.0	0.9
Task three (story)			
Inadequate	—	16.6	5.8
Minimal	—	18.8	16.4
Satisfactory	—	50.4	58.1
Elaborated	—	14.3	19.7

—Not applicable

SOURCE: National Assessment of Educational Progress, *Who Reads Best? Factors Related to Reading Achievement in Grades 3, 7, and 11*, 1988.

Table 1:1–3 Standard errors for percent of students at each level of written response to reading tasks, by grade: 1986 (table 1:1–2)

Task	Grade 3	Grade 7	Grade 11
		Percent	
Task one (story)			
Inadequate	1.2	1.4	1.0
Minimal	1.0	0.9	0.9
Satisfactory	1.0	1.1	1.5
Elaborated	0.3	0.8	1.8
Task two (social studies)			
No comparison	1.5	1.4	1.4
Unsatisfactory comparison	1.5	1.4	1.6
Minimal comparison	0.2	0.5	1.1
Satisfactory comparison	0.0	0.2	0.4
Elaborated comparison	0.0	0.0	0.3
Task three (story)			
Inadequate	—	1.2	0.7
Minimal	—	1.1	0.9
Satisfactory	—	1.8	1.4
Elaborated	—	0.7	1.2

—Not applicable

SOURCE: National Assessment of Educational Progress, *Who Reads Best? Factors Related to Reading Achievement in Grades 3, 7, and 11*, 1988.

Supplemental note 1:1 Average reading performance, by race and ethnicity

The 1985–86 National Assessment of Educational Progress (NAEP) reading assessment was administered to students at age 9/grade 3, age 13/grade 7, and age 17/grade 11. For this assessment, birth date ranges for eligible 9-, 13-, and 17-year-olds were defined as October 1 through September 30 for each age level, rather than the calendar year used previously for 9- and 13-year-olds. Thus, the modal grade levels for those age-eligible students were 3, 7, and 11 rather than 4, 8, and 11 reported for the 1983–84 assessment.

The 1985–86 assessment design was based on a variant of matrix sampling called Balanced Incomplete Block (BIB) spiralling. The entire assessment battery (including mathematics and science) was divided into blocks requiring approximately 15 minutes each, and each student was administered a booklet containing three blocks as well as a 6-minute block of background questions. Each assessment session lasted about 1 hour.

Six blocks of reading assessment questions were assessed at each age/grade level. As part of the partial BIB design, each pair of blocks within a subject area appeared in at least one booklet. In addition, some blocks were paired across subject areas. With three subject areas and a number of blocks within each subject area, the number of combinations of blocks (and therefore booklets) was large. Thus, at age 9/grade 3, 52 booklets were prepared. Twenty-nine of the booklets contained one or more reading blocks, with each of the six reading blocks appearing in six or seven booklets. Sixty-eight booklets were administered at age 13/grade 7, with 27 of them containing reading materials and each reading block appearing in six or seven different booklets. Reading items were included in 35 of the 96 booklets administered to students age 17/grade 11, with each reading block appearing seven times.

The spiralling feature of the BIB method cycles the booklets for administration so that typically only a few students in any assessment session receive the same booklet. At each age/grade level, each block of exercises was administered to approximately 2,600 students, providing about 2,000 student responses to each item for the grade-level analyses reported in this indicator. Across all the booklets, the results contained in this report were based on 9,793 students at grade 3, 9,513 students at grade 7, and 16,510 students at grade 11.

Item Response Theory (IRT) methods were used to provide results for the NAEP reading scale. The main purpose of IRT analysis is to provide a common scale on which performance can be compared across groups and subgroups. It allows NAEP to estimate performance for any group or subgroup even though none of the respondents took all the exercises in the NAEP pool. For further information, see the *1983-84 NAEP Technical Report.* *

During the scaling process, it was noted that the results of the 1986 reading assessment were inconsistent with previous NAEP reading assessment results. In particular, of most concern was the fact that they indicated declines in average reading proficiency at ages 9 and 17. The declines did not appear to be limited to any section of the country, sex, race, or other reporting variable, and the relative performance of the various subpopulation groups seemed reasonable. Therefore, the Educational Testing Service (ETS), in consultation with NAEP's Technical Advisory Panel, decided that the 1985-86 reading assessment was not equivalent to that administered in 1983-84. Thus, while it is appropriate to issue a cross-sectional report, it would not be appropriate to use the 1986 data to report trends over time in reading proficiency. To discourage comparisons of the 1986 data with previous NAEP reading data, the scale was changed from a 0 to 500 scale to a 0 to 100 scale with a mean of 50 and a standard deviation of 10. However, one component of the 1988 reading assessment is designed to provide the information necessary to adjust the 1986 results so they will be equivalent with the 1983-84 assessment and trends over time, so that incorporating the 1986 assessment will be possible.

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* National Assessment of Education Progress, *Implementing the New Design: 1983-84 NAEP Technical Report,* Princeton, N.J.: Educational Testing Service, 1986.

SOURCE: National Assessment of Educational Progress, *Who Reads Best? Factors Related to Reading Achievement in Grades 3, 7, and 11,* 1988.

Indicator 1:2

Table 1:2–1 Average mathematics proficiency of 9-, 13-, and 17-year-old students: Selected years 1973–1986

Age	1973 [1]	1978	1982	1986
9	219.1	218.6	219.0	[2] 221.7
13	266.0	264.1	268.6	[2] 269.0
17	304.4	300.4	298.5	[3] 302.0

[1] The 1973 mathematics assessment was not included in the scaling of NAEP trend data. However, a rough estimate of the 1973 mean level of student mathematics proficiency was computed by NAEP.

[2] Statistically significant difference from 1978 at the 0.05 level.

[3] Statistically significant difference from 1982 at the 0.05 level.

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card: Are We Measuring Up?*, 1988.

Table 1:2-2 **Percent of 9-, 13-, and 17-year-old students at or above the five proficiency levels on the mathematics proficiency scale: 1978, 1982, and 1986**

Proficiency level	Age	1978	1982	1986
			Percent	
Level 150	9	96.5	97.2	97.8
Simple arithmetic facts	13	99.8	99.9	100.0
	17	100.0	100.0	100.0
Level 200	9	70.3	71.5	[1] 73.9
Beginning skills and understanding	13	94.5	97.6	[1] 98.5
	17	99.8	99.9	99.9
Level 250	9	19.4	18.7	20.8
Basic operations and beginning problem solving	13	64.9	71.6	[1] 73.1
	17	92.1	92.9	[2] 96.0
Level 300	9	0.8	0.6	0.6
Moderately complex procedures and reasoning	13	17.9	17.8	15.9
	17	51.4	48.3	51.1
Level 350	9	0.0	0.0	0.0
Multistep problem solving and algebra	13	0.9	0.5	0.4
	17	7.4	5.4	6.4

[1] Statistically significant difference from 1978 at the 0.05 level.

[2] Statistically significant difference from 1978 and 1982 at the 0.05 level.

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card: Are We Measuring Up?*, 1988.

Table 1:2–3 Standard errors for average mathematics proficiency scales for 9-, 13-, and 17-year-old students: 1978, 1982, and 1986 (table 1:2–1)

Age	1978	1982	1986
9	0.8	1.1	1.0
13	1.1	1.1	1.2
17	0.9	0.9	0.9

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card, Are We Measuring Up?*, 1988

Indicator 1:2

Table 1:2–4 **Standard errors for percent of 9-, 13-, and 17-year-olds at or above the five proficiency levels on the mathematics proficiency scale: 1978, 1982, and 1986 (table 1:2–2)**

Proficiency levels	Age	1978	1982	1986
Level 150	9	0.2	0.3	0.2
Simple arithmetic	13	0.0	0.0	0.0
facts	17	0.0	0.0	0.0
Level 200	9	0.9	1.1	1.1
Beginning skills	13	0.4	0.4	0.2
and understanding	17	0.0	0.1	0.1
Level 250	9	0.6	0.8	0.9
Basic operations and	13	1.2	1.2	1.5
beginning problem solving	17	0.5	0.5	0.4
Level 300	9	0.1	0.1	0.2
Moderately complex	13	0.7	0.9	1.0
procedures and reasoning	17	1.1	1.2	1.2
Level 350	9	0.0	0.0	0.0
Multistep problem	13	0.2	0.1	0.1
solving and algebra	17	0.4	0.4	0.4

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card: Are We Measuring Up?*, 1988.

Supplemental note 1:2 Trends in mathematics performance

The 1985-86 National Assessment of Educational Progress (NAEP) mathematics assessment was administered to students at age 9/grade 3, age 13/grade 7, and age 17/grade 11. For this assessment, birth date ranges for eligible 9-, 13-, and 17-year-olds were defined as October 1 through September 30 for each age level, rather than the calendar year used previously for 9- and 13-year-olds.

The 1985-86 assessment design was based on a variant of matrix sampling called Balanced Incomplete Block (BIB) spiralling. The entire assessment battery (including reading and science, as well as mathematics) was divided into blocks requiring approximately 15 minutes each, and each student was administered a booklet containing three blocks as well as a 6-minute block of background questions. The spiralling part of the method cycles the booklets for administration so that typically only a few students in any assessment session receive the same booklet. Each assessment session lasted about 1 hour.

For the portion of the assessment designed to measure trends, students were administered previously assessed mathematics questions according to the procedures used in prior assessments. Sixty-eight questions were given at age 9, 98 at age 13, and 94 at age 17, with each of the booklets accompanied by a paced audio recording of the questions as was done in the first three assessments. None of the students at any age were administered the full set of questions. Nine- and 13-year-olds were administered three booklets containing mathematics trend items and 17-year-olds were administered two booklets.

Sample sizes for the trend results are:

Age	1978	1982	1986
9	14,752	12,038	6,932
13	24,209	15,758	6,200
17	26,756	16,319	3,868

Beginning with the 1986 assessment, Item Response Theory (IRT) methodology was used to estimate levels of mathematics achievement. IRT defines the probability of answering a given item correctly as a mathematical function of proficiency level or skill and certain characteristics of the item. NAEP uses a three-parameter logistic model to estimate proficiency. With IRT technology, the performance of a sample of students in a learning area or subarea can be summarized on a single scale, even if different students have been administered different exercises.

The mathematics proficiency scale ranges from 0 to 500 with a standard deviation of 50. The levels chosen for describing results are 150, 200, 250, 300, and 350. Each level is defined by describing the types of mathematics questions that most students attaining that proficiency level would be able to solve successfully. The guideline used to select such questions was that students at any given level would have at least a 70 to 80 percent probability of success with these mathematics questions, while students at the next lower level would have less than a 40 to 50 percent probability of success. The scale levels are described as follows:

150 level—*Simple arithmetic facts*

Learners at this level know some basic addition and subtraction facts and can add two-digit numbers without regrouping (carrying). They recognize simple situations in which addition and subtraction apply. They also are developing rudimentary classification skills.

200 level—*Beginning skills and understanding*

Students at this level have considerable understanding of two-digit numbers. They can add two-digit numbers, but are still developing an ability to regroup in subtraction. They know relations among coins, can read information from charts and graphs, and use simple measurement instruments. They are developing some reasoning skills.

250 level—*Basic operations and beginning problem solving*

Students at this level have an initial understanding of the four basic operations. They are able to add and subtract whole numbers and apply these skills to one-step word problems and money situations. In multiplication, they can find the product of a two-digit and a one-digit number. They can also compare information from graphs and charts and are developing an ability to analyze simple logical relations.

300 level—*Moderately complex procedures and reasoning*

Students at this level are developing an understanding of number systems. They can compute with decimals, simple fractions, and commonly encountered percents. They can identify geometric figures, measure lengths and angles, and calculate areas of rectangles. These students are also able to interpret simple inequalities, evaluate formulas, and solve simple linear equations. They can find averages, make

> decisions on information drawn from graphs, and use logical reasoning to solve problems. They are developing the skills to operate with signed numbers, exponents, and square roots.
>
> 350 level—*Multistep problem solving and algebra*
>
> Students at this level can apply a range of reasoning skills to solve multistep problems. They can solve routine problems involving fractions and percents, recognize properties of basic geometric figures, and work with exponents and square roots. They can solve a variety of two-step problems using variables, identify equivalent algebraic expressions, and solve linear equations and inequalities. They are developing an understanding of functions and coordinate systems.

The 1973 mathematics assessment was not included in the scaling of NAEP trend data. However, NAEP computed a rough estimate of the 1973 mean level of mathematics proficiency by assuming a non-negative, linear trend relationship, within a given age level, between the natural logarithm of a group's mean p-value level and its respective mathematics proficiency mean. For each age level, a mean p-value estimate using a common set of items was available for 1973, 1978, and 1982. Proficiency means for 1978 and 1982 were regressed on the respective proficiency means for these 2 years. The linear equation obtained from this regression was used to extrapolate to the 1973 proficiency mean by inserting the 1973 mean p-value into the equation.

The standard error, computed using a jackknife replication procedure, provides an estimate of sampling reliability for NAEP measures. NAEP uses the jackknife methodology to estimate the sampling variability of all reported statistics because conventional formulas for estimating standard errors of sampling statistics are inappropriate for use with NAEP's complex sampling procedures.

SOURCE: National Assessment of Educational Progress, *The Mathematics Report Card: Are We Measuring Up?*, 1988.

Indicator 1:3

Table 1:3–1 **Average mathematics proficiency of 13-year-old students in six countries: 1988**

Group	Country/province	Proficiency level
1	Korea	567.8
2	Quebec (French)	543.0
	British Columbia	539.8
	Quebec (English)	535.8
	New Brunswick (English)	529.0
3	Ontario (English)	516.1
	New Brunswick (French)	514.2
	Spain	511.7
	United Kingdom	509.9
	Ireland	504.3
4	Ontario (French)	481.5
	United States	473.9

NOTE: Differences in performance between the four groups are statistically significant at the 0.05 level; differences in performance within groups are not statistically significant.

SOURCE: International Assessment of Educational Progress, *A World of Differences, An International Assessment of Mathematics and Science*, 1989.

Table 1:3–2 Percentages of 13-year-old students in six countries performing at or above each level of the mathematics proficiency scale: 1988

Country/province	300 (Add and subtract)	400 (Simple problems)	500 (Two-step problems)	600 (Understand concepts)	700 (Interpret data)
Korea	100	95	78	40	5
Quebec (French)	100	97	73	22	2
British Columbia	100	95	69	24	2
Quebec (English)	100	97	67	20	1
New Brunswick (English)	100	95	65	18	1
Ontario (English)	99	92	58	16	1
New Brunswick (French)	100	95	58	12	<1
Spain	99	91	57	14	1
United Kingdom	98	87	55	18	2
Ireland	98	86	55	14	<1
Ontario (French)	99	85	40	7	0
United States	97	78	40	9	1

SOURCE: International Assessment of Educational Progress, *A World of Differences, International Assessment of Mathematics and Science*, 1989.

Table 1:3-3 Standard errors for average mathematics proficiency of students in six countries, age 13: 1988 (table 1:3-1)

Group	Country	Standard error
1	Korea	2.7
2	Quebec (French)	3.1
	British Columbia	2.2
	Quebec (English)	2.0
	New Brunswick (English)	2.6
3	Ontario (English)	3.1
	New Brunswick (French)	3.3
	Spain	4.6
	United Kingdom	3.5
	Ireland	3.7
4	Ontario (French)	2.7
	United States	4.5

SOURCE: International Assessment of Educational Progress, *A World of Differences. An International Assessment of Mathematics and Science*, 1989.

Table 1:4–1 National trends in average science proficiency: Selected years 1970–1986

Age of student	1970	1973	1977	1982	1986
9	224.9	220.3	219.9	220.9	[1] 224.3
13	254.9	249.5	247.4	250.2	251.4
17	304.8	295.8	289.6	283.3	[2] 288.5

[1] Statistically significant difference from 1977 at the 0.05 level.

[2] Statistically significant difference from 1982 at the 0.05 level.

NOTE: While 9- and 13-year-olds were assessed in the spring of 1970, 17-year-olds were assessed in the spring of 1969.

SOURCE: National Assessment of Educational Progress, *The Science Report Card, Elements of Risk and Recovery*, 1988.

Table 1:4–2 Percent of 9-, 13-, and 17-year-old students at or above the five science proficiency levels: 1977, 1982, and 1986

Proficiency level	Age	1977	1982	1986
Level 150	9	93.6	95.0	[1] 96.3
Knows everyday	13	98.6	99.6	99.8
science facts	17	99.8	99.7	99.9
Level 200	9	67.9	70.4	[1] 71.4
Understands simple	13	85.9	89.6	[1] 91.8
scientific principles	17	97.2	95.8	96.7
Level 250	9	26.2	24.8	27.6
Applies basic	13	49.2	51.5	[1] 53.4
scientific information	17	81.8	76.8	[2] 80.8
Level 300	9	3.5	2.2	3.4
Analyzes scientific	13	10.9	9.4	9.4
procedures and data	17	41.7	37.5	[2] 41.4
Level 350	9	0.0	0.1	0.1
Integrates specialized	13	0.7	0.4	0.2
scientific information	17	8.5	7.2	7.5

[1] Statistically significant difference from 1977 at the 0.05 level.

[2] Statistically significant difference from 1982 at the 0.05 level.

NOTE: No significance test is reported when the proportion is either >95.0 or <5.0.

SOURCE: National Assessment of Educational Progress, *The Science Report Card: Elements of Risk and Recovery*, 1988.

Table 1:4–3 **Standard errors for national trends in average science proficiency: Selected years 1970–1986 (table 1:4–1)**

Age of student	1970	1973	1977	1982	1986
9	1.2	1.2	1.2	1.8	1.2
13	1.1	1.1	1.1	1.3	1.4
17	1.0	1.0	1.0	1.1	1.4

SOURCE: National Assessment of Educational Progress, *The Science Report Card: Elements of Risk and Recovery*, 1988.

Table 1:4–4 **Standard errors for percent of 9-, 13-, and 17-year-old students at or above the five science proficiency levels: 1977, 1982, and 1986 (table 1:4–2)**

Proficiency level	Age	1977	1982	1986
Level 150	9	0.5	0.5	0.3
Knows everyday	13	0.1	0.1	0.1
science facts	17	0.0	0.1	0.1
Level 200	9	1.1	1.6	1.0
Understands simple	13	0.7	0.7	0.9
scientific principles	17	0.2	0.4	0.4
Level 250	9	0.7	1.7	1.0
Applies basic	13	1.1	1.4	1.4
scientific information	17	0.7	1.0	1.2
Level 300	9	0.2	0.6	0.4
Analyzes scientific	13	0.4	0.6	0.7
procedures and data	17	0.8	0.8	1.4
Level 350	9	0.0	0.1	0.1
Integrates specialized	13	0.1	0.1	0.1
scientific information	17	0.4	0.4	0.6

SOURCE: National Assessment of Educational Progress, *The Science Report Card, Elements of Risk and Recovery*, 1988.

Indicator 1:4

Supplemental note 1:4 Trends in science proficiency

The 1986 assessment design underlying the grade-level results was based on a variant of matrix sampling called Balanced Incomplete Block (BIB) spiralling. As part of this design, for each subject area assessed (reading, mathematics, and computer competence, as well as science) and for each grade level, the entire 1986 assessment battery was divided into blocks of approximately 15 minutes each, and each student was administered a booklet containing three blocks of content-area materials as well as a six-minute block of background questions common to all students. Seven blocks of science questions were assessed at grade 3, nine blocks at grade 7, and eleven blocks at grade 11.

As part of the partial BIB design, each pair of blocks within a subject area appeared in at least one assessment booklet. In addition, some blocks were paired across subject areas. At grade 3, 52 different booklets were prepared. Thirty-two of them contained one or more science blocks, with each of the seven blocks appearing in six to eight booklets. Sixty-eight booklets were assessed at grade 7, 37 of which contained science blocks; each science block appeared in six to nine different booklets. Science items were included in 44 of the 96 booklets administered to students at grade 11, with each block appearing in seven to nine times.

The spiralling part of the method cycles the booklets for administration so that typically only a few students in any assessment session receive the same booklet.

Sample sizes for trend results are:

Age	1970	1973	1977	1982	1986
9	19,468	20,862	17,345	1,960	6,932
13	21,696	23,507	25,653	7,873	6,200
17	22,913	25,865	31,436	7,974	3,868

The science proficiency scale ranges from 0 to 500 with a standard deviation of 50. The levels chosen for describing results are 150, 200, 250, 300, and 350. Each level is defined by describing the types of science questions that most students attaining that proficiency should be able to answer successfully. The scale levels are described as follows:

Level 150—*Knows everyday science facts*

Students at this level know some general scientific facts of the type that could be learned from everyday experiences. They can read simple graphs, match the distinguishing characteristics of animals, and predict the operation of familiar apparatus that work according to mechanical principles.

Level 200—*Understands simple scientific principles*

Students at this level are developing some understanding of simple scientific principles, particularly in the life sciences. For example, they exhibit some rudimentary knowledge of the structure and function of plants and animals.

Level 250—*Applies basic scientific information*

Students at this level can interpret data from simple tables and make inferences about the outcomes of experimental procedures. They exhibit knowledge and understanding of the life sciences, including familiarity with some aspects of animal behavior and ecological relationships. These students also demonstrate some knowledge of basic information from the physical sciences.

Level 300—*Analyzes scientific procedures and data*

Students at this level can evaluate the appropriateness of the design of an experiment. They have more detailed scientific knowledge, and the skill to apply their knowledge in interpreting information from text and graphs. These students also exhibit a growing understanding of principles from the physical sciences.

Level 350—*Integrates specialized scientific information*

Students at this level can infer relationships and draw conclusions using detailed scientific knowledge from the physical sciences, particularly chemistry. They also can apply basic principles of genetics and interpret the societal implications of research in this field.

SOURCE: National Assessment of Educational Progress, *The Science Report Card, Elements of Risk and Recovery*, 1986.

Indicator 1:5

Table 1:5–1 Average science proficiency of 13-year-old students in six countries: 1988

Group	Country/province	Proficiency level
1	British Columbia	551.3
	Korea	549.9
2	United Kingdom	519.5
	Quebec (English)	515.3
	Ontario (English)	514.7
	Quebec (French)	513.4
	New Brunswick (English)	510.5
	Spain	503.9
3	United States	478.5
	Ireland	469.3
	Ontario (French)	468.3
	New Brunswick (French)	468.1

NOTE: Differences in performance between the three groups are statistically significant at the 0.05 level; differences in performance within groups are not statistically significant.

SOURCE: International Assessment of Educational Progress, *A World of Differences, An International Assessment of Mathematics and Science*, 1989.

Table 1:5-2 Percentage of 13-year-old students in six countries performing at or above each level of the science proficiency scale: 1988

Country/province	300 (Know everyday facts)	400 (Apply simple principles)	500 (Analyze experiments)	600 (Apply intermediate principles)	700 (Integrate experimental evidence)
British Columbia	100	95	72	31	4
Korea	100	93	73	33	2
United Kingdom	98	89	59	21	2
Quebec (English)	99	92	57	15	1
Ontario (English)	99	91	56	17	2
Quebec (French)	100	91	56	15	1
New Brunswick (English)	99	90	55	15	1
Spain	99	88	53	12	1
United States	96	78	42	12	1
Ireland	96	76	37	9	1
Ontario (French)	98	79	35	6	<1
New Brunswick (French)	98	78	35	7	<1

SOURCE: International Assessment of Educational Progress, *A World of Differences, An International Assessment of Mathematics and Science*, 1989.

Table 1:5-3 **Standard errors of average science proficiency of students in six countries, age 13: 1988 (table 1:5-1)**

Group	Country	Standard error
1	British Columbia	2.1
	Korea	2.9
2	United Kingdom	3.7
	Quebec (French)	2.8
	Ontario (English)	2.7
	Quebec (French)	3.3
	New Brunswick (English)	2.7
	Spain	4.3
3	United States	4.8
	Ireland	3.5
	Ontario (French)	2.2
	New Brunswick (French)	3.9

SOURCE: International Assessment of Educational Progress, *A World of Differences, An International Assessment of Mathematics and Science*, 1989.

Indicator 1:6

Table 1:6-1 U.S. history item responses: 1986

More than 80 percent answered correctly:	Percent correct
Thomas Edison invented the light bulb	95.2
Location of the Soviet Union on a map	92.1
Alexander Graham Bell invented the telephone	91.1
George Washington was President between 1780 and 1800	87.9
Location of Italy on a map	87.7
The Underground Railroad was a network for helping slaves escape	87.5
Adolph Hitler was the leader of Germany when the U.S. entered World War II	87.4
Thomas Jefferson was the primary author of the Declaration of Independence	87.4
The assembly line was introduced in the U.S. automobile industry	87.2
Location of the area representing the 13 original States on a map	84.8
The Ku Klux Klan used violence to oppose equality for minorities	83.9
Harriet Tubman was a leader in helping slaves escape to the North	83.8
Bill of Rights guarantees freedom of speech and religion	81.3
Location of the Rocky Mountains on a map	81.3
The Japanese attack on Pearl Harbor led the U.S. into World War II	80.0

Less than 30 percent answered correctly:	Percent correct
Andrew Jackson was President between 1820 and 1840	29.9
The Reformation led to the establishment of Protestant groups	29.8
The United Nations was founded between 1934 and 1947	25.9
The Seneca Falls Declaration was concerned with women's rights	25.8
Abraham Lincoln was President between 1860 and 1880	24.7
Medicare and the Voting Act were passed under Lyndon Johnson's Great Society	23.9
Betty Friedan and Gloria Steinem are leaders in the women's movement	22.8
Progressive movement refers to the period after World War I	22.6
Reconstruction refers to the readmission of the Confederate States	21.4
John Winthrop and the Puritans founded a colony at Boston	19.5

SOURCE: National Assessment of Educational Progress, *Literature and U.S. History: The Instructional Experience and Factual Knowledge of High School Juniors*, 1987.

Indicator 1:6

Table 1:6–2 Literature item responses: 1986

More than 80 percent answered correctly:	Percent correct
Noah gathered pairs of creatures onto the ark	94.0
Moses led the people out of Egypt and gave the 10 Commandments	92.3
Romeo and Juliet's love was hindered by their feuding families	89.7
"I have a dream ..." is from a speech by Martin Luther King, Jr.	88.1
Hamlet said "To be or not to be: that is the question."	87.8
In *A Christmas Carol*, Ebenezer Scrooge became generous	87.2
Zeus was the ruler of the gods in Greek mythology	86.7
The White Rabbit and Mad Hatter are characters in *Alice in Wonderland*	86.1
Robin Hood was known for stealing from the rich to give to the poor	85.7
Cinderella's rags turned into a gown and she met a prince	85.1
"The Lord is my shepherd ..." is from Psalm 23	82.4
Huckleberry Finn is about an orphaned boy and a runaway slave	80.5
Merlin was the magician in the legend of King Arthur	80.5

Less than 30 percent answered correctly:	Percent correct
D.H. Lawrence wrote "The Rocking Horse Winner," *Sons and Lovers*	28.7
Willa Cather wrote *My Antonia*, *Death Comes for the Archbishop*	28.2
Tennessee Williams wrote *A Streetcar Named Desire*	27.6
Ernest Hemingway wrote "In Another Country," "The Killers"	27.3
Thomas Hardy wrote *Return of the Native*	24.4
In *Catcher in the Rye*, a 16-year-old boy goes to New York	22.5
Henry James wrote about American compared to European lives	21.9
Henrik Ibsen wrote *Hedda Gabbler*, *A Doll's House*	20.3
Joseph Conrad wrote *Heart of Darkness*	19.3
Invisible Man describes a young man's move to Harlem	18.3
Fyodor Dostoevski wrote *Crime and Punishment*	17.1
James Joyce is the author of *Ulysses* and *A Portrait of the Artist as a Young Man*	15.6
De Tocqueville wrote about what he saw in *Democracy in America*	15.5
Eudora Welty and Flannery O'Connor are known for stories set in the American South	14.4
The animal referred to in William Blake's poem is a tiger	13.6
The Pilgrim's Progress is an allegory about Christians	13.4

SOURCE: National Assessment of Educational Progress, *Literature and U.S. History: The Instructional Experience and Factual Knowledge of High School Juniors*, 1987.

Table 1:6–3 Average proficiency on the U.S. history and literature scales of high school juniors, by selected characteristics: 1986

Selected characteristics	History	Literature
	Average scores *	
Total	285.0	285.0
Race/ethnicity		
White	290.8	289.9
Black	263.1	267.5
Hispanic	262.5	264.8
Gender		
Male	290.7	282.8
Female	279.0	287.3
Region		
Northeast	293.8	293.0
Southeast	278.4	282.6
Central	286.8	284.3
West	280.2	280.4
Size/type of community		
Rural	275.1	273.7
Urban disadvantaged	262.0	265.2
Urban advantaged	301.1	301.4
School program		
Academic	298.8	298.7
General	271.4	271.7
Vocational/technical	266.3	265.9
Parents' level of education		
No high school diploma	260.8	266.2
Graduated high school	273.8	273.4
Post high school	289.7	288.3
Graduated college	297.7	297.6
Reading materials in the home		
0–3 types	265.1	265.4
4 types	279.6	279.3
5 types	291.6	291.7

* The history and literature scales range from 0 to 500.

SOURCE: National Assessment of Educational Progress, *Literature and U.S. History: The Instructional Experience and Factual Knowledge of High School Juniors*, 1987.

Indicator 1:6

Supplemental note 1:6 Knowledge of U.S. history and literature

The 1985–86 National Assessment of Educational Progress (NAEP) U.S. history and literature assessment was administered to students at age 17 or in grade 11. The assessment design was based on a variant of matrix sampling called Balanced Incomplete Block (BIB) spiralling. The entire assessment battery (including reading, mathematics, and science) was divided into blocks approximately 15 minutes each, and each student was administered a booklet containing three blocks as well as a 6-minute block of background questions. Each assessment session lasted about 1 hour.

History and literature items were included in 4 of the 92 booklets administered to students at age 17/grade 11 in the 1986 assessment. Each of four booklets contained one block of history questions, one block of literature questions, and one block of reading questions. The history blocks each consisted of 34 to 36 attitude items. The literature blocks contained 30 to 31 content items as well as 42 literature background and attitude items. All the history and literature questions were multiple-choice.

The four booklets containing the history and literature blocks were spiralled with the remaining NAEP booklets. This procedure cycled the booklets for administration so that typically no two students in any session received the same booklet. Thus a matrix sampling procedure was used for these four booklets, with no student administered more than one booklet. A nationally representative sample of nearly 2,000 11th grade students responded to each booklet and a total of 7,812 11th graders were included in the analyses for both literature and U.S. history.

Analyses included computing the percentages of students giving various responses and using Item Response Theory (IRT) technology to estimate knowledge levels for the National and various subpopulations. IRT methods were used to derive a history scale and a literature scale. These scales range from 0 to 500. For both the U.S. history and literature scales, the mean and standard deviation were set to 285 and 40, respectively. These values were chosen to be similar to the mean and standard deviation for 11th graders on the 1983–84 (NAEP) reading scale.

The main purpose of IRT analysis is to provide a common scale on which performance can be compared across groups and subgroups, whether they are tested at the same time or a number of years apart. It allows NAEP to estimate performance for any group or subgroup, even though all respondents did not take all the exercises in the NAEP pool. Because the students responding to the U.S. history and literature questions received one of four non-overlapping sets of items for each of the two subject areas, it was necessary to assume that the four blocks of items within a subject area were equivalent samples of the content domain. NAEP considered this assumption reasonable, since the blocks were constructed to be parallel, and the assumption was supported by item analysis results. Because of the relatively large number of literature and U.S. history items administered to each student, reasonably precise estimates of knowledge levels could be obtained for individual respondents.

Another analysis of the NAEP U.S. history and literature assessment was performed by Diane Ravitch and Chester E. Finn and reported in their book, *What Do Our 17-Year-Olds Know?* (Harper and Row, N.Y., 1987). Ravitch and Finn scaled responses to each of the assessment items in order to assign a letter grade from A to F to each item. These letter grades were assigned according to the proportion of students who correctly responded to a given item. Scores between 90 and 100 percent correct were treated as "A"; between 80 and 90 percent correct "B"; between 70 and 80 percent correct "C"; between 60 and 70 percent correct "D"; and scores below 60 were treated as "F". Ravitch and Finn then calculated average grades for various subgroups of respondents and items. On this scale, the average student received an F on the history assessment by only giving correct responses to 54.5 percent of the questions that he or she attempted. Similarly, by answering only 51.8 percent of attempted questions, the average student also received a failing grade on the literature assessment.

SOURCE: National Assessment of Educational Progress, *Literature and U.S. History: The Instructional Experience and Factual Knowledge of High School Juniors*, 1987.

Indicator 1:7

Table 1:7-1 **Overall computer competence scores for students in grades 3, 7, and 11: School year ending 1986**

Grade assessed	Number of items	Grade level 3	Grade level 7	Grade level 11
		Mean percent correct		
Grade 3	59	33.7	—	—
Grade 7	131	—	41.2	—
Grade 11	125	—	—	46.2
Grades 3 and 7	44	33.9	48.3	—
Grades 7 and 11	65	—	48.9	57.9
Grades 3, 7, 11	26	38.7	55.2	64.8

—Not applicable

NOTE: Scores do not have equivalent meanings across grade levels.

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessment*, 1988.

Table 1:7-2 **Computer competence scores for students in grades 3, 7, an**
11, by computer use, study, or ownership: School year ending 198

Type of experience	Grade level		
	3	7	11
	Mean percent correct		
Have used a computer			
Yes	34.6	42.2	47.6
No	30.8	34.0	37.4
Are currently studying computers			
Yes	34.8	44.1	52.8
No	32.6	39.5	45.1
Family owns a computer			
Yes	36.4	46.1	52.7
No	32.5	38.9	43.5

NOTE: Scores do not have equivalent meanings across grade levels.

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessme*
1988.

Table 1:7–3 Computer competence scores for students in grades 7 and 11, by home and school experience: School year ending 1986

Family ownership/ study status	Grade level 7	Grade level 11
	Mean percent correct	
Owns, is studying	37.2	48.5
Owns, is not studying	35.5	44.2
Does not own, is studying	33.8	41.5
Does not own, is not studying	31.4	37.4

NOTE: Scores do not have equivalent meanings across grade levels.

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessment*, 1988.

Table 1:7–4 Standard errors for overall computer competence scores for stude in grades 3, 7, and 11: School year ending 1986 (table 1:7-1)

Grade tested	Number of items	Grade level		
		3	7	11
Grade 3	59	0.3	—	—
Grade 7	131	—	0.3	—
Grade 11	125	—	—	0.4
Grades 3 and 7	44	0.3	0.4	—
Grades 7 and 11	65	—	0.3	0.4
Grades 3, 7, 11	26	0.3	0.4	0.5

—Not applicable

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessm*
1988

Table 1:7–5 Standard errors for computer competence scores for students in grades 3, 7, and 11, by computer use, study, or ownership: School year ending 1986 (table 1:7–2)

Type of experience	Grade level		
	3	7	11
Have used a computer			
Yes	0.3	0.3	0.4
No	0.4	0.3	0.4
Are currently studying computers			
Yes	0.5	0.6	1.1
No	0.3	0.2	0.3
Family owns a computer			
Yes	0.7	0.4	0.7
No	0.3	0.3	0.3

NOTE: Scores do not have equivalent meanings across grade levels.

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assessment*, 1988.

Table 1:7–6 Standard errors for computer competence scores for students grades 7 and 11, by home and school experience: School year en 1986 (table 1:7–3)

Family ownership/ study status	Grade level	
	7	11
	Mean percent correct	
Owns/is studying	1.2	0.7
Owns/is not studying	0.6	0.4
Does not own/is studying	0.4	0.5
Does not own/is not studying	0.3	0.3

NOTE: Scores do not have equivalent meanings across grade levels.

SOURCE: National Assessment of Educational Progress, *Computer Competence: The First National Assess* 1988.

Indicator 1:8

Table 1:8–1 Percent of high school graduates earning recommended credits in "new basics," by racial/ethnic category: 1982 and 1987

Racial/ethnic category of students	1982	1987	Percent change 1982 to 1987
All students	13.4	28.6	* 15.2
White	14.9	29.7	* 14.8
Black	10.1	24.3	* 14.2
Hispanic	6.3	17.9	* 11.6
Asian	21.0	48.3	* 27.3
Other	5.9	28.9	* 23.0

* Difference between 1982 and 1987 graduates is significant at the $p < 0.05$ level.

NOTE: In this table "new basics" includes 4 years of English and 3 years each of social studies, mathematics, and science.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1987 High School Transcript Study, unpublished tabulations.

Indicator 1:9

Table 1:9–1 High school completion rates of persons aged 18–19 and 20–24, by race and Hispanic origin: 1974–1986

Year	Age 18–19				Age 20–24			
	Total	White	Black	Hispanic *	Total	White	Black	Hispanic *
	Percentage of age group				Percentage of age group			
1974	73.4	76.2	55.8	48.9	83.9	85.6	72.5	59.0
1975	73.7	77.0	52.8	50.0	83.9	85.9	70.5	61.3
1976	73.1	75.4	58.2	50.9	83.7	85.4	71.9	58.0
1977	72.9	75.7	54.9	50.7	83.7	85.1	73.4	56.6
1978	73.5	76.3	54.9	48.9	83.7	85.2	73.5	58.7
1979	72.8	75.3	56.4	53.7	83.2	84.9	71.8	55.8
1980	73.7	76.1	59.3	46.1	83.8	85.1	74.3	57.1
1981	72.5	74.8	59.6	47.2	83.7	85.0	75.7	59.3
1982	72.0	74.5	58.2	51.7	84.1	85.4	76.2	60.2
1983	72.7	75.6	59.1	50.3	83.3	84.6	75.8	56.6
1984	73.3	75.5	63.0	58.3	84.6	85.7	79.3	60.7
1985	74.6	76.7	62.8	49.8	85.3	86.0	80.8	67.4
1986	74.6	76.6	64.9	54.7	84.8	85.4	81.0	61.6

* Most of the year-to-year differences in completion rates for Hispanics are not statistically significant due to the small size of the Hispanic sample. Hispanics may be of any race.

NOTE: Separate analyses were not done for Asians because they are not identifiable from the October Current Population Survey data tapes.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students, October [various years]," *Current Population Reports*, Series P-20; and unpublished tabulations.

Table 1:9–2 High school completion rates of persons aged 25–34, by race and Hispanic origin: 1974–1986

Year	Total	White	Black	Hispanic *
		Percentage of age group		
1974	81.1	82.6	68.4	49.2
1975	81.9	83.6	67.5	53.4
1976	82.3	83.6	71.4	51.5
1977	83.6	84.9	72.0	56.2
1978	84.6	85.9	74.4	55.0
1979	85.0	86.3	74.7	54.3
1980	85.4	86.7	76.4	56.1
1981	85.9	86.8	78.6	54.9
1982	86.3	87.3	79.7	56.6
1983	86.7	87.6	80.2	57.5
1984	86.8	87.9	79.9	58.9
1985	86.3	87.2	80.7	59.4
1986	86.5	87.4	80.1	60.0

* Hispanics may be of any race.

NOTE: For any given year, 18- to 19-, 20- to 24-, and 25- to 34-year-olds represent different groups of people. Therefore, these tables should be used with caution when attempting to make inferences about the completion rates of a specific group as it ages. Separate analyses were not done for Asians because they are not identifiable from October Current Population Survey data tapes.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students, October [various years]," *Current Population Reports*, Series P-20.

Indicator 1:10

Table 1:10–1 Scholastic Aptitude Test (SAT) scores: School years e 1963–1988

School year * ending	Total	Verbal	Math	School year * ending	Total	Verbal	M
	Average test scores				Average test scores		
1963	980	478	502	1976	903	431	4
1964	973	475	498	1977	899	429	4
1965	969	473	496	1978	897	429	4
1966	967	471	496	1979	894	427	4
1967	958	466	492	1980	890	424	4
1968	958	466	492	1981	890	424	4
1969	956	463	493	1982	893	426	4
1970	948	460	488	1983	893	425	4
1971	943	455	488	1984	897	426	4
1972	937	453	484	1985	906	431	4
1973	926	445	481	1986	906	431	4
1974	924	444	480	1987	906	430	4
1975	906	434	472	1988	904	428	4

* Averages for 1972 through 1988 are based on college-bound seniors. Averages for 1963 through 19 estimates provided by the College Board; background information needed for specific identification of college- seniors was not collected before 1972.

SOURCE: College Entrance Examination Board, *National Report: College-Bound Seniors*, various years (copy College Entrance Examination Board, all rights reserved).

Table 1:10–2 American College Testing (ACT) scores: School years ending 1970–1988

School year ending	Composite	English	Mathematics	Social studies	Natural sciences
		Average test scores (men and women)			
1970	19.9	18.5	20.0	19.7	20.8
1971	19.2	18.0	19.1	18.7	20.5
1972	19.1	17.9	18.8	18.6	20.6
1973	19.2	18.1	19.1	18.3	20.8
1974	18.9	17.9	18.3	18.1	20.8
1975	18.6	17.7	17.6	17.4	21.1
1976	18.3	17.5	17.5	17.0	20.8
1977	18.4	17.7	17.4	17.3	20.9
1978	18.5	17.9	17.5	17.1	20.9
1979	18.6	17.9	17.5	17.2	21.1
1980	18.5	17.9	17.4	17.2	21.1
1981	18.5	17.8	17.3	17.2	21.0
1982	18.4	17.9	17.2	17.3	20.8
1983	18.3	17.8	16.9	17.1	20.9
1984	18.5	18.1	17.3	17.3	21.0
1985	18.6	18.1	17.2	17.4	21.2
1986	18.8	18.5	17.3	17.6	21.4
1987	18.7	18.4	17.2	17.5	21.4
1988	18.8	18.5	17.2	17.4	21.4

SOURCE: The American College Testing Program, *The High School Profile Report, Normative Data*, various years.

Table 1:10-3 American College Testing (ACT) scores, by gender: School ending 1974–1988

School year ending	Composite	English	Mathematics	Social studies	Nautral
			Average test scores (men)		
1974	19.7	17.1	19.7	19.1	
1975	19.5	17.1	19.3	18.7	
1976	19.1	16.8	19.2	17.9	
1977	19.2	17.0	18.9	18.2	
1978	19.3	17.4	19.1	18.0	
1979	19.3	17.4	19.1	18.1	
1980	19.3	17.3	18.9	18.2	
1981	19.3	17.3	18.9	18.3	
1982	19.2	17.3	18.6	18.1	
1983	19.1	17.3	18.4	18.0	
1984	19.3	17.5	18.6	18.1	
1985	19.4	17.6	18.6	18.3	
1986	19.6	17.9	18.8	18.6	
1987	19.5	17.9	18.6	18.4	
1988	19.6	18.0	18.4	18.4	
			Average test scores (women)		
1974	18.2	18.6	17.1	17.3	
1975	17.8	18.3	16.2	16.4	
1976	17.6	18.0	16.0	16.2	
1977	17.8	18.2	16.1	16.5	
1978	17.8	18.3	16.2	16.4	
1979	17.9	18.4	16.2	16.4	
1980	17.9	18.3	16.2	16.4	
1981	17.8	18.2	16.0	16.4	
1982	17.8	18.4	16.0	16.6	
1983	17.6	18.2	15.7	16.4	
1984	17.9	18.6	16.1	16.5	
1985	17.9	18.6	16.0	16.6	
1986	18.1	18.9	16.0	16.9	
1987	18.1	18.9	16.1	16.7	
1988	18.1	19.0	16.1	16.6	

SOURCE: The American College Testing Program, *The High School Profile Report, Normative Data*, variou

Indicator 1:11

Table 1:11-1 Scholastic Aptitude Test (SAT) scores, by control of high school: Selected school years ending 1982-1988

School year ending and control	Verbal	Math
	Mean test scores	
1982		
Public	426	470
Private	440	471
1983		
Public	425	471
Private	439	472
1984		
Public	427	474
Private	441	475
1985		
Public	431	478
Private	446	479
1987		
Public	428	476
Religiously affiliated	440	469
Independent	473	519
1988		
Public	426	476
Religiously affiliated	440	470
Independent	470	517

NOTE: Data not available for 1986.

SOURCE: The College Entrance Examination Board. *The National Report of College-Bound Seniors, Profile of SAT and Achievement Test Takers*, various years.

Indicator 1:12

Table 1:12-1 Unemployment rates of high school graduates and dropouts, aged 20–24, by race and ethnicity and gender: March 1983–March 1988

Characteristic	1983	1984	1985	1986	1987	1988
All aged 20-24						
Graduates	17.6	12.9	12.6	13.1	10.7	10.7
Dropouts	31.5	26.6	25.1	23.7	22.7	20.5
White						
Graduates	15.0	10.7	10.4	10.7	9.0	8.6
Dropouts	27.6	22.5	22.4	19.7	17.0	16.7
Black						
Graduates	33.6	27.7	26.4	28.2	21.8	24.0
Dropouts	48.4	50.8	42.7	43.7	49.5	38.3
Hispanic						
Graduates	18.9	11.4	12.0	11.5	11.3	10.6
Dropouts	30.5	25.7	18.0	16.3	15.8	14.1
Male						
Graduates	19.3	13.6	13.0	13.6	11.0	10.4
Dropouts	32.1	26.3	25.1	23.8	22.7	18.8
Female						
Graduates	15.6	12.1	12.1	12.4	10.4	11.1
Dropouts	30.1	27.1	25.1	23.6	22.8	23.8

NOTE: Dropouts are those who are identified as completing 1-3 years of high school.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Educational Attainment of Workers, March [various years]."

Table 1:12–2 Standard errors of unemployment rates of high school graduates and high school dropouts, aged 20–24, by race and ethnicity and by gender: March 1983–1988 (table 1:12–1)

Characteristic	1983	1984	1985	1986	1987	1988
All aged 20–24						
Graduates	0.5	0.4	0.4	0.4	0.4	0.4
Dropouts	0.6	0.5	0.5	0.5	0.5	0.5
White						
Graduates	0.5	0.4	0.4	0.4	0.4	0.4
Dropouts	0.6	0.5	0.6	0.5	0.5	0.5
Black						
Graduates	1.8	1.7	1.7	1.7	1.6	1.6
Dropouts	1.9	1.9	1.9	1.9	1.9	1.9
Hispanic						
Graduates	2.0	1.5	1.5	1.4	1.3	1.3
Dropouts	2.4	2.0	1.7	1.6	1.5	1.5
Male						
Graduates	0.7	0.6	0.6	0.6	0.5	0.5
Dropouts	0.8	0.8	0.7	0.7	0.7	0.7
Female						
Graduates	0.6	0.6	0.6	0.6	0.6	0.6
Dropouts	0.8	0.8	0.8	0.8	0.8	0.8

NOTE: Dropouts have completed 1–3 years of high school.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, "Educational Attainment of Workers, March [various years]."

Indicator 1:13

Table 1:13–1 Revenue sources for public elementary and secondary schools: Selected school years ending 1920–1987

School year ending	Total revenues [1]	Sources		
		Local [2]	State	Federal
		Percent of total		
1920	$ 970,121	83.2	16.5	0.3
1930	2,088,557	82.7	16.9	0.4
1940	2,260,527	68.0	30.3	1.8
1950	5,437,044	57.3	39.8	2.9
1960	14,746,618	56.5	39.1	4.4
1970	40,266,923	52.1	39.9	8.0
1971	44,511,292	52.5	39.1	8.4
1972	50,003,645	52.8	38.3	8.9
1973	52,117,930	51.3	40.0	8.7
1974	58,230,892	50.1	41.4	8.5
1975	64,445,239	48.8	42.2	9.0
1976	71,206,073	46.5	44.6	8.9
1977	75,322,532	47.8	43.4	8.8
1978	81,443,160	47.6	43.0	9.4
1979	87,994,143	44.6	45.6	9.8
1980	96,881,165	43.4	46.8	9.8
1981	105,949,087	43.4	47.4	9.2
1982	110,191,257	45.0	47.6	7.4
1983	117,497,502	45.0	47.9	7.1
1984	126,055,419	45.4	47.8	6.8
1985	137,294,678	44.4	48.9	6.6
1986 [3]	149,127,779	43.9	49.4	6.7
1987 [3]	158,827,473	43.9	49.8	6.4

[1] In thousands of current dollars.

[2] Includes intermediate sources.

[3] Revised from previously published figures.

NOTE: Percents may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on Common Core of Data survey and its predecessors).

Indicator 1:14

Table 1:14–1 Expenditure per pupil in average daily attendance in public elementary and secondary schools: Selected school years ending 1950–1988

School year ending	Current dollars		Constant 1986–87 [1] dollars	
	Total expenditure per pupil [2]	Current expenditure per pupil [3]	Total expenditure per pupil [2]	Current expenditure per pupil [3]
1950	$ 259	$ 209	$ 1,216	$ 982
1952	313	244	1,325	1,033
1954	351	265	1,452	1,096
1956	388	294	1,605	1,216
1958	449	341	1,749	1,328
1960	472	375	1,787	1,420
1962	530	419	1,961	1,551
1964	559	460	2,016	1,659
1966	654	537	2,280	1,872
1968	786	658	2,571	2,152
1970	955	816	2,812	2,403
1972	1,128	990	3,049	2,676
1974	1,364	1,207	3,254	2,880
1976	1,697	1,504	3,404	3,017
1977	1,816	1,638	3,442	3,104
1978	2,002	1,823	3,555	3,237
1979	2,210	2,021	3,589	3,282
1980	2,491	2,272	3,569	3,255
1981	[4] 2,762	2,502	[4] 3,547	3,213
1982	[4] 2,997	2,726	[4] 3,542	3,222
1983	[4] 3,230	2,955	[4] 3,661	3,349
1984	[4] 3,500	3,173	[4] 3,825	3,467
1985	[4] 3,760	3,470	[4] 3,954	3,649
1986	[4] 4,070	3,756	[4] 4,160	3,839
1987	[4] 4,365	3,977	[4] 4,365	3,977
1988	[4] 4,645	—	[4] 4,460	—

—Data not available.

[1] Based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor, and adjusted to a school-year basis.

[2] Total expenditure includes all current expenditures, capital outlay, and interest on school debt.

[3] Current expenditure includes expenditures for operating local public schools, excluding capital outlay, and interest on debt.

[4] Estimated.

NOTE: Some data revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems* and *Revenues and Expenditures for Public Elementary and Secondary Education*, various years; and Common Core of Data survey and unpublished data.

Table 1:14–2 **Current expenditure per pupil in average daily attendance in public elementary and secondary schools, by State: School years ending 1970 and 1987**

(Amounts in 1986–87 dollars)

State	1970	1987	Percent increase	State	1970	1987	Percent increase
United States	**$2,403**	**$3,977**	**65.5**	Missouri	$2,088	$3,472	66.3
Alabama	1,602	2,573	60.6	Montana	2,303	4,194	82.1
Alaska	3,307	8,010	142.2	Nebraska	2,167	3,756	73.3
Arizona	2,120	3,544	67.2	Nevada	2,264	3,573	57.8
Arkansas	1,673	2,733	63.4	New Hampshire	2,129	3,933	84.7
California *	2,553	3,728	46.0	New Jersey	2,992	5,953	99.0
Colorado	2,173	4,147	90.8	New Mexico	2,082	3,558	70.9
Connecticut	2,800	5,435	94.1	New York	3,907	6,497	66.3
Delaware	2,650	4,825	82.1	North Carolina	1,802	3,129	73.6
Dist. of Columbia	2,998	5,742	91.5	North Dakota	2,032	3,437	69.1
Florida	2,155	3,794	76.1	Ohio	2,150	3,671	70.7
Georgia	1,731	3,374	94.9	Oklahoma	1,779	3,099	74.2
Hawaii	2,476	3,787	52.9	Oregon	2,724	4,337	59.2
Idaho	1,776	2,585	45.6	Pennsylvania	2,597	4,616	77.7
Illinois	2,677	4,106	53.4	Rhode Island	2,624	4,985	90.0
Indiana	2,144	3,556	65.9	South Carolina	1,805	3,237	79.3
Iowa	2,485	3,808	53.2	South Dakota	2,032	3,097	52.4
Kansas	2,270	3,933	73.3	Tennessee	1,667	2,827	69.6
Kentucky	1,605	2,733	70.3	Texas	1,837	3,409	85.6
Louisiana	1,908	3,069	60.8	Utah	1,843	2,415	31.0
Maine	2,038	3,850	88.9	Vermont	2,376	4,399	85.1
Maryland	2,703	4,777	76.7	Virginia	2,085	3,780	81.3
Massachusetts	2,529	5,145	103.4	Washington	2,694	3,964	47.1
Michigan	2,662	4,353	63.5	West Virginia	1,973	3,784	91.8
Minnesota	2,662	4,180	57.0	Wisconsin	2,600	4,523	74.0
Mississippi	1,475	2,350	59.3	Wyoming	2,521	5,201	106.3

* Estimated by the National Center for Education Statistics.

NOTE: 1986–87 dollars are based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor. These data do not reflect differences in inflation rates from State to State.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems*; and Common Core of Data survey, special tabulations.

Indicator 1:15

Table 1:15–1 National index of public school revenues per pupil in relation to per capita income: Selected school years ending 1940–1988

School year ending	National index	Total education revenues [1] (billions)	Public elementary and secondary enrollment (millions)	Revenues [1] per pupil	Total personal income [1] (billions)	Total population (millions)	Per capita personal income [1]
1940	16.5	$ 2.3	$ 25.4	$ 91	$ 72.1	$131.0	$ 550
1950	15.5	5.4	25.1	215	206.4	149.2	1,383
1960	18.4	14.7	36.1	407	390.7	177.1	2,206
1970	23.2	40.3	45.6	884	772.9	202.7	3,813
1980	25.8	96.9	41.6	2,329	2,034.0	225.1	9,036
1981	26.1	105.9	41.0	2,583	2,258.5	227.8	9,914
1982	25.1	110.2	40.1	2,748	2,520.9	230.2	10,951
1983	25.8	117.5	39.7	2,960	2,670.8	232.5	11,487
1984	26.5	126.1	39.4	3,201	2,838.6	234.8	12,089
1985	26.7	137.4	39.3	3,496	3,108.7	237.1	13,111
1986	27.2	149.1	39.5	3,775	3,325.3	239.3	13,896
1987	27.3	158.8	39.8	3,990	3,531.1	241.7	14,609
1988	[2] 27.1	[2] 168.1	40.0	[2] 4,203	3,780.0	243.9	15,498

[1] In current dollars.

[2] Estimated.

NOTE: Data have been substantially revised from previously published figures. Beginning in 1960, data include Alaska and Hawaii.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on Common Core of Data surveys, various years); and unpublished data. Bureau of Economic Analysis, *State Personal Income: 1929-82*, 1984, and *Regional Economic Information System*, August 1987.

Table 1:15-2 State indices of public school revenues per pupil in relation to per capita income: School years ending 1980 and 1987

State	State index		State and local education revenues (thousands) 1987	Public elementary/ secondary enrollment 1986–87	Per pupil education revenues 1987	Total personal income (millions) 1986 *	Total population (thousands) 1986 *	Per capita personal income 1986 *
	1980	1987						
Alabama	19.9	22.1	$ 1,829,237	733,735	$ 2,493	$ 45,736	4,050	$ 11,293
Alaska	34.3	32.5	645,873	107,973	5,982	9,780	532	18,383
Arizona	25.1	26.2	1,917,559	534,538	3,587	44,857	3,279	13,680
Arkansas	18.4	20.4	983,446	437,438	2,248	26,135	2,371	11,023
California	21.6	21.8	16,001,481	4,377,989	3,655	453,404	27,001	16,792
Colorado	26.9	27.0	2,278,132	558,415	4,080	49,364	3,266	15,115
Connecticut	18.6	27.2	2,491,509	468,847	5,314	62,418	3,193	19,548
Delaware	27.1	27.1	396,394	94,410	4,199	9,814	633	15,504
Dist. of Columbia	20.2	24.3	394,335	85,612	4,606	11,803	623	18,945
Florida	22.0	26.1	6,135,339	1,607,320	3,817	170,994	11,694	14,622
Georgia	20.2	23.4	3,445,300	1,096,425	3,142	82,069	6,100	13,454
Hawaii	19.3	21.6	522,624	164,640	3,174	15,634	1,065	14,680
Idaho	20.6	21.3	496,322	208,391	2,382	11,192	1,002	11,170
Illinois	20.5	20.4	5,763,963	1,825,185	3,158	179,076	11,551	15,503
Indiana	18.8	26.7	3,387,264	966,780	3,504	72,217	5,503	13,123
Iowa	24.5	27.3	1,751,758	481,286	3,640	37,999	2,850	13,333
Kansas	24.7	26.5	1,600,681	416,091	3,847	35,667	2,459	14,505
Kentucky	18.4	20.2	1,463,999	642,778	2,278	41,985	3,726	11,268
Louisiana	21.2	23.9	2,138,810	795,188	2,690	50,539	4,499	11,233
Maine	22.0	26.8	730,136	211,752	3,448	15,056	1,172	12,846
Maryland	24.2	26.7	3,058,772	675,747	4,527	75,550	4,461	16,936
Massachusetts	31.0	26.5	3,901,526	833,918	4,679	102,884	5,834	17,635
Michigan	25.4	27.4	6,817,342	1,681,880	4,053	135,320	9,139	14,807
Minnesota	27.7	27.9	2,969,938	711,134	4,176	63,173	4,213	14,995
Mississippi	17.6	20.0	963,669	498,639	1,933	25,361	2,624	9,665
Missouri	21.0	23.1	2,576,645	800,606	3,218	70,618	5,064	13,945
Montana	28.2	32.2	579,150	153,327	3,777	9,583	817	11,729
Nebraska	23.5	26.0	943,891	267,139	3,533	21,683	1,598	13,569
Nevada	18.2	22.8	569,389	161,239	3,531	14,949	967	15,459
New Hampshire	14.7	23.3	625,241	163,717	3,819	16,845	1,027	16,402

Table 1:15-2 State indices of public school revenues per pupil in relation to per capita income: School years ending 1980 and 1987—Continued

State	State index		State and local education revenues (thousands) 1987	Public elementary/ secondary enrollment 1986–87	Per pupil education revenues 1987	Total personal income (millions) 1986 *	Total population (thousands) 1986 *	Per capita personal income 1986 *
	1980	1987						
New Jersey	29.1	30.3	$ 6,302,219	1,107,467	$ 5,691	$ 143,297	7,625	$ 18,793
New Mexico	25.2	27.4	885,089	281,943	3,139	16,944	1,479	11,456
New York	30.5	34.2	14,994,974	2,607,719	5,750	299,324	17,795	16,821
North Carolina	20.7	23.7	3,199,286	1,085,248	2,948	78,654	6,331	12,424
North Dakota	24.4	25.9	382,038	118,703	3,218	8,441	679	12,432
Ohio	22.1	23.9	5,944,785	1,793,508	3,315	148,929	10,748	13,856
Oklahoma	21.9	22.5	1,631,875	593,183	2,751	40,493	3,306	12,248
Oregon	25.9	29.3	1,740,468	449,307	3,874	35,778	2,702	13,241
Pennsylvania	26.2	32.8	7,840,829	1,674,161	4,683	169,857	11,894	14,281
Rhode Island	25.1	30.8	601,987	134,126	4,488	14,219	975	14,584
South Carolina	18.8	26.2	1,811,742	611,629	2,962	38,162	3,381	11,287
South Dakota	21.5	24.9	368,209	125,458	2,935	8,351	708	11,795
Tennessee	16.8	18.7	1,835,485	818,073	2,244	57,523	4,800	11,984
Texas	20.4	25.5	11,054,468	3,209,515	3,444	225,203	16,689	13,494
Utah	24.2	23.7	1,083,370	415,994	2,604	18,253	1,664	10,969
Vermont	26.1	30.0	368,274	92,112	3,998	7,207	541	13,322
Virginia	21.0	24.3	3,659,143	975,135	3,752	89,372	5,795	15,422
Washington	25.8	25.8	2,922,186	761,428	3,838	66,343	4,463	14,865
West Virginia	23.3	30.7	1,144,572	351,837	3,253	20,296	1,917	10,587
Wisconsin	25.6	29.5	3,148,923	767,819	4,101	66,590	4,783	13,922
Wyoming	25.7	45.6	586,644	100,955	5,811	6,455	507	12,732

* The figures shown are for calendar year 1986.

NOTE: Data for school year 1986–87 revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on Common Core of Data Surveys, various years); and unpublished data. National Education Association, *Estimates of School Statistics, 1986–87*, 1987, copyrighted. U.S. Department of Commerce, Bureau of Economic Analysis, *State Personal Income: 1929–82*, 1984, and *Regional Economic Information System*, August 1987.

Table 1:16–1 Full-time-equivalent staff employed in public school systems: School years ending 1960, 1970, 1981, and 1988

School year ending	Total	Classroom teachers [1]	Other staff [2]
		Number in thousands	
1960	2,089	1,353	736
1970	3,368	2,023	1,344
1981	4,168	2,184	1,984
1988	4,312	2,279	2,034

[1] Includes a small number of teacher aides.

[2] Includes (a) instructional support staff, such as teacher aides, librarians, guidance counselors, principals, assistant principals; (b) school district administrative staff, such as superintendents and their assistants, intermediate district staff, and supervisors of instruction; and (c) other support staff such as clerical, transportation, food service, plant operation, and health staff.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of State School Systems*, various years; and *Digest of Education Statistics, 1985–86, 1987, 1988*, and forthcoming.

Table 1:16–2 Full-time-equivalent staff employed in public school systems: School years ending 1983–1988

School year ending	All	Classroom teachers	Instructional support [1]	Administrators and administrative support [2]	Other support [3]
			Number in thousands		
1983	3,927	2,121	396	511	899
1984	3,908	2,126	387	512	883
1985	4,063	2,168	399	511	984
1986	4,161	2,207	421	516	1,016
1987 *	4,234	2,244	447	532	1,010
1988	4,312	2,279	456	539	1,039
			Percentage distribution		
1983	100.0	54.0	10.1	13.0	22.9
1984	100.0	54.4	9.9	13.1	22.6
1985	100.0	53.4	9.8	12.6	24.2
1986	100.0	53.0	10.1	12.4	24.4
1987 *	100.0	52.9	10.5	12.6	23.9
1988	100.0	52.8	10.6	12.5	24.1

* Data revised from previously published figures.

[1] Includes instructional aides, guidance counselors, and librarians.

[2] Includes school and district administrators and the associated clerical staff.

[3] Includes employees not included above, such as media personnel, bus drivers, security officers, cafeteria workers.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1985–86, 1987, 1988*, and forthcoming (based on Common Core of Data survey); and unpublished estimates. See also "Staff in Public Elementary Schools, Secondary Schools, and School Systems, Fall, 1984," *OERI Bulletin*, January 1987; and "Staff in Public Elementary and Secondary Schools and School Systems, Fall 1983," *OERI Historical Report*, February 1987.

Table 1:17-1 Estimated average annual salary of teachers in public elementary and secondary schools: Selected school years ending 1960–1988

School year ending	Current dollars			Constant dollars (1987–88) *		
	All teachers	Elementary teachers	Secondary teachers	All teachers	Elementary teachers	Secondary teachers
1960	$ 4,995	$ 4,815	$ 5,276	$ 19,693	$ 18,983	$ 20,801
1962	5,515	5,340	5,775	21,255	20,580	22,257
1964	5,995	5,805	6,266	22,517	21,803	23,535
1966	6,485	6,279	6,761	23,544	22,796	24,546
1968	7,423	7,208	7,692	25,285	24,553	26,201
1970	8,626	8,412	8,891	26,453	25,797	27,265
1971	9,268	9,021	9,568	27,026	26,306	27,901
1972	9,705	9,424	10,031	27,321	26,530	28,238
1973	10,174	9,893	10,507	27,532	26,771	28,433
1974	10,770	10,507	11,077	26,759	26,105	27,521
1975	11,641	11,334	12,000	26,037	25,351	26,840
1976	12,600	12,280	12,937	26,319	25,651	27,023
1977	13,354	12,989	13,776	26,357	25,637	27,190
1978	14,198	13,845	14,602	26,260	25,607	27,007
1979	15,032	14,681	15,450	25,421	24,827	26,128
1980	15,970	15,569	16,459	23,830	23,232	24,560
1981	17,644	17,230	18,142	23,595	23,041	24,261
1982	19,274	18,853	19,805	23,725	23,207	24,379
1983	20,695	20,227	21,291	24,425	23,873	25,129
1984	21,921	21,460	22,557	24,949	24,424	25,673
1985	23,593	23,182	24,193	25,840	25,390	26,498
1986	25,198	24,666	25,866	26,825	26,258	27,536
1987	26,556	25,978	27,262	27,656	27,054	28,392
1988	28,044	27,423	28,895	28,044	27,423	28,895

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* Based on the Consumer Price Index, prepared by the Bureau of Labor Statistics, U.S. Department of Labor, and adjusted to a school-year basis.

NOTE: Data for some recent years have been revised from previously published figures.

SOURCE: National Education Association, *Estimates of School Statistics*, various years (latest edition 1987-88, copyright 1988 by the National Education Association, all rights reserved); and unpublished data.

Indicator 1:18

Table 1:18-1 Pupil/teacher ratios in public elementary and secondary schools: School years 1959–60 through 1987–88

School year	K-12	Elementary	Secondary
1959–60	26.0	28.7	21.5
1960–61	25.8	28.4	21.7
1961–62	25.6	28.3	21.7
1962–63	25.7	28.5	21.7
1963–64	25.5	28.4	21.5
1964–65	25.1	27.9	21.5
1965–66	24.7	27.6	20.8
1966–67	24.1	26.9	20.3
1967–68	23.7	26.3	20.3
1968–69	23.2	25.4	20.4
1969–70	22.7	24.8	20.0
1970–71	22.3	24.4	19.9
1971–72	22.3	24.9	19.3
1972–73	21.8	24.0	19.1
1973–74	21.3	23.0	19.3
1974–75	20.8	22.6	18.7
1975–76	20.4	21.7	18.8
1976–77	20.3	21.8	18.5
1977–78	19.7	21.1	18.2
1978–79	19.3	21.0	17.3
1979–80	19.1	20.6	17.2
1980–81	18.8	20.3	16.9
1981–82	18.9	20.5	16.9
1982–83	18.7	20.4	16.6
1983–84	18.5	20.4	16.2
1984–85	18.1	20.0	15.7
1985–86	17.9	19.6	15.7
1986–87	17.7	19.1	16.0
1987–88 *	17.6	19.5	15.3

* Preliminary.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Statistics of Public Elementary and Secondary Day Schools*, various years; and Common Core of Data survey, various years.

Indicator 1:19

Table 1:19–1 Projected annual demand for new hiring of classroom teachers in public elementary and secondary schools: Fall 1989–1997

Fall of year	Projected demand for new hiring of teachers		
	Total	Elementary	Secondary
1989	140,000	87,000	53,000
1990	143,000	87,000	57,000
1991	149,000	85,000	64,000
1992	161,000	87,000	74,000
1993	166,000	88,000	78,000
1994	169,000	88,000	81,000
1995	174,000	88,000	86,000
1996	174,000	89,000	84,000
1997	171,000	89,000	83,000

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 1997–98*, 1988.

Supplemental note 1:19 Demand for new hiring of public school teachers

In an April 1988 Targeted Forecast on public classroom teachers, the National Center for Education Statistics for the first time used econometric models to forecast numbers of public elementary and secondary school classroom teachers. That model was also used to produce the forecasts for this indicator. In that model, the number of public school teachers was forecast separately for the elementary and secondary levels. The number of elementary teachers was modeled as a function of per capita income (lagged 2 years), revenue receipts from State sources per capita, and elementary enrollment. The number of secondary teachers was modeled as a function of per capita income (lagged 1 year), revenue receipts from State sources per capita, and secondary enrollment (lagged 1 year). Both per capita income and revenue receipts from State sources were in constant 1982 dollars.

This model is based upon suggestions by the National Academy of Sciences report, *Toward Understanding Teacher Supply and Demand: Priorities for Research and Development Interim Report.* The equations used in the forecast model should be viewed as forecasting rather than structural equations, as the limitations of time and available data precluded the building of a large-scale structural teacher model. The particular equations used were selected on the basis of their statistical properties, such as coefficients of determination (R-squares), the t-statistics of the variables, the Durbin-Watson statistics, and residual plots.

The multiple regression technique used yields good results only if the relationships that existed among the variables in the past continue throughout the forecast period.

The projections presented in this indicator are substantially different from those published prior to *The Condition of Education,* 1988. Previous projection models had relied very heavily on extrapolations of pupil/teacher ratios, which had been steadily declining for many years. The new projection model used in this indicator makes no explicit assumptions about pupil/teacher ratios. The projections presented in this indicator are therefore lower, but more realistic, than earlier projections.

NOTE: For more information on these projections, see U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 1997–98,* 1988.

Indicator 1:20

Table 1:20–1 Public and private school enrollment, kindergarten through grade 12: Fall 1970–1986

Fall of year	Public school			Private school			Private school enrollment as a percentage of total enrollment		
	Total K–12	K–8	9–12	Total K–12	K–8	9–12	Total K–12	K–8	9–12
	Enrollment (in thousands)						Percent		
1970	46,193	32,648	13,545	5,655	4,485	1,170	10.9	12.1	8.0
1971	46,575	32,518	14,057	5,378	4,252	1,126	10.4	11.6	7.4
1972	45,344	31,329	14,015	5,203	4,048	1,155	10.3	11.4	7.6
1973	44,945	30,783	14,162	4,945	3,761	1,184	9.9	10.9	7.7
1974	44,957	30,682	14,275	4,867	3,695	1,172	9.8	10.7	7.6
1975	44,520	30,017	14,503	5,001	3,821	1,180	10.1	11.3	7.5
1976	44,201	29,660	14,541	4,804	3,603	1,201	9.8	10.8	7.6
1977	43,153	28,648	14,505	5,025	3,777	1,248	10.4	11.6	7.9
1978	41,976	27,745	14,231	4,978	3,734	1,244	10.6	11.9	8.0
1979	41,343	27,349	13,994	4,663	3,541	1,122	10.1	11.5	7.4
1980	—	27,088	—	—	3,537	—	—	11.5	—
1981	40,897	27,374	13,523	4,701	3,582	1,119	10.3	11.6	7.6
1982	40,131	27,127	13,004	4,702	3,584	1,118	10.5	11.7	7.9
1983	39,701	26,909	12,792	4,868	3,650	1,218	10.9	11.9	8.7
1984 *	39,794	27,073	12,721	4,306	3,249	1,057	9.8	10.7	7.7
1985	39,788	27,024	12,764	4,872	3,657	1,215	10.9	11.9	8.7
1986	40,237	27,491	12,746	4,757	3,591	1,166	10.6	11.6	8.4

—Not available.

* An unexplained drop occurred in the number and proportion of private school students in 1984, according to the Bureau of the Census. However, the 1984 data appear to be an anomaly, since the 1985 and 1986 figures for private school students are very similar to those for 1983 and are consistent with the level from 1979 through 1983.

NOTE: Detail may not add to total due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students: October 1984 (Advance Report)" and "October 1985 (Advance Report)," *Current Population Reports*, Series P-20, Nos. 404 and 409; and personal communication with the author.

Table 1:20–2 Standard errors for public and private school K-12 enrollment: Fall 1970-1986 (table 1:20–1)

Fall of year	Public school			Private school			Private school enrollment as a percentage of total enrollment		
	Total K–12	K–8	9–12	Total K–12	K–8	9–12	Total K–12	K–8	9–12
	Standard errors (in thousands)						Standard errors of percentages		
1970	240	95	151	104	96	48	0.2	0.3	0.3
1971	241	96	153	102	94	47	0.2	0.3	0.3
1972	239	106	153	100	92	48	0.2	0.3	0.3
1973	239	110	154	98	89	48	0.2	0.3	0.3
1974	239	111	154	97	88	48	0.2	0.3	0.3
1975	238	115	155	98	90	48	0.2	0.3	0.3
1976	238	117	155	96	86	49	0.2	0.3	0.3
1977	237	123	155	98	89	50	0.2	0.3	0.3
1978	235	127	154	98	89	50	0.2	0.3	0.3
1979	234	129	153	95	87	47	0.2	0.3	0.3
1980	—	130	—	—	87	—	—	0.3	—
1981	251	138	162	102	93	52	0.2	0.3	0.3
1982	249	140	164	102	93	51	0.2	0.3	0.3
1983	249	141	164	104	94	51	0.2	0.3	0.4
1984	249	140	165	98	89	52	0.2	0.3	0.3
1985	249	140	165	104	94	52	0.2	0.3	0.4
1986	250	138	158	103	94	52	0.2	0.3	0.4

—Not Available

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollment—Social and Economic Characteristics of Students: October 1984 (Advance Report)" and "October 1985 (Advance Report)," *Current Population Reports*, Series P-20, Nos. 404 and 409.

Indicator 1:21

Table 1:21-1 Enrollment in kindergarten through grade 8 (K-8) and grades 9-12 of public elementary and secondary schools, with projections: Fall 1972-1997

Fall of year	Grades K-12 *	Grades K-8 *	Grades 9-12
		Number in thousands	
1972	45,744	31,831	13,913
1973	45,429	31,353	14,077
1974	45,053	30,921	14,132
1975	44,791	30,487	14,304
1976	44,317	30,006	14,311
1977	43,577	29,336	14,240
1978	42,550	28,328	14,223
1979	41,645	27,931	13,714
1980	40,987	27,674	13,313
1981	40,099	27,245	12,855
1982	39,652	27,156	12,496
1983	39,352	26,997	12,355
1984	39,295	26,918	12,377
1985	39,509	27,049	12,460
1986	39,837	27,404	12,434
1987	40,024	27,886	12,138
		Projected enrollment in thousands	
1988	40,280	28,439	11,841
1989	40,337	28,807	11,530
1990	40,752	29,366	11,386
1991	41,306	29,794	11,512
1992	41,879	30,178	11,701
1993	42,444	30,460	11,984
1994	43,014	30,624	12,390
1995	43,442	30,738	12,704
1996	43,775	30,772	13,003
1997	43,960	30,754	13,206

* Includes most kindergarten and some nursery school enrollment.

NOTE: Detail may not add to totals due to rounding. Some data revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Projections of Education Statistics to 1997-98*, 1988; and Common Care of Data Survey.

Supplemental note 1:21 Trends in public school enrollment: 1972–1997

The National Center for Education Statistics (NCES) projected enrollment in public elementary and secondary grades 2 through 12 using a grade retention method. This method starts with 6-year-olds entering first grade and then follows their subsequent progress through public elementary and secondary schools. The method assumes that past trends in factors affecting enrollments will continue over the projection period. The method also implicitly includes the net effect of such variables as immigration, dropouts, transfers to and from private schools, and deaths. NCES projected enrollment for kindergarten, first grade, elementary ungraded and special, secondary ungraded and special, and postgraduate schools using enrollment rates for populations of 5-, 6-, 5- to 13-, 14- to 17-, and 18-year-olds as the bases. Both public grade retention rates and public enrollment rates by age are projected to remain constant at levels consistent with most recent rates.

These enrollment forecasts are demographically based. NCES chose to use Bureau of the Census middle series (series 14) population projections. These assume an ultimate completed cohort fertility rate of 1.8 births per woman by the year 2050 and a net annual immigration of 600,000 through 1988. Net immigration then decreases 10,000 every year to 500,000 by 1998 and remains constant thereafter.

For further details on the methods used to develop these forecasts, see *Projections of Education Statistics to 1997–98,* 1988.

Indicator 1:22

Table 1:22-1 Enrollment in public elementary and secondary education, by race and ethnicity: 1976, 1984, and 1986

Race/ethnicity	1976	1984	1986	Percent change 1976–86
		Number in thousands		
Total	43,714	39,452	41,156	-5.9
White, non-Hispanic	33,229	28,106	28,957	-12.9
Total minority	10,485	11,346	12,200	16.4
Black, non-Hispanic	6,774	6,389	6,622	-2.2
Hispanic	2,807	3,599	4,064	44.7
Asian/Pacific Islander	535	994	1,158	116.4
American Indian/Alaskan Native	368	364	356	-3.3
		Percent of total enrollment		
Total	100.0	100.0	100.0	—
White, non-Hispanic	76.0	71.2	70.4	—
Total minority	24.0	28.8	29.6	—
Black, non-Hispanic	15.5	16.2	16.1	—
Hispanic	6.4	9.1	9.9	—
Asian/Pacific Islander	1.2	2.5	2.8	—
American Indian/Alaskan Native	0.8	0.9	0.9	—

—Not applicable

NOTE: Detail may not add to total due to rounding.

SOURCE: U.S. Department of Education, Office for Civil Rights, *Directory of Elementary and Secondary School Districts and Schools in Selected Districts: 1976–77*, 1984; and 1986 Elementary and Secondary School Civil Rights Survey, unpublished tabulations.

Indicator 1:23

Table 1:23-1 Elementary and secondary students served in federally supported education programs for the handicapped, by type of handicap: School years ending 1977-1988

Type of handicap	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
	Number served in thousands [1]											
All conditions	3,692	3,751	3,889	4,005	4,142	4,198	4,255	4,298	4,315	4,317	4,374	4,446
Learning disabled	796	964	1,130	1,276	1,462	1,622	1,741	1,806	1,832	1,862	1,914	1,928
Speech impaired	1,302	1,223	1,214	1,186	1,168	1,135	1,131	1,128	1,126	1,125	1,136	953
Mentally retarded	959	933	901	869	829	786	757	727	694	660	643	582
Seriously emotionally disturbed	283	288	300	329	346	339	352	361	372	375	383	373
Hard of hearing and deaf	87	85	85	80	79	75	73	72	69	66	65	56
Orthopedically handicapped	87	87	70	66	58	58	57	56	56	57	57	47
Other health impaired	141	135	105	106	98	79	50	53	68	57	52	45
Visually impaired	38	35	32	31	31	29	28	29	28	27	26	22
Multihandicapped	—	—	50	60	68	71	63	65	69	86	97	77
Deaf-blind	—	—	2	2	3	2	2	2	2	2	2	1
Preschool [2]	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	363
	Percentage distribution of children served											
All conditions	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Learning disabled	21.6	25.7	29.1	31.9	35.3	38.6	40.9	42.0	42.4	43.1	43.8	43.4
Speech impaired	35.3	32.6	31.2	29.6	28.2	27.0	26.6	26.2	26.1	26.1	26.0	21.4
Mentally retarded	26.0	24.9	23.2	21.7	20.0	18.7	17.8	16.9	16.1	15.3	14.7	13.1
Seriously emotionally disturbed	7.7	7.7	7.7	8.2	8.4	8.1	8.3	8.4	8.6	8.7	8.8	8.4
Hard of hearing and deaf	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.7	1.6	1.5	1.5	1.3
Orthopedically handicapped	2.4	2.3	1.8	1.6	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.1
Other health impaired	3.8	3.6	2.7	2.6	2.4	1.9	1.2	1.2	1.6	1.3	1.2	1.0
Visually impaired	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5
Multihandicapped	—	—	1.3	1.5	1.6	1.7	1.5	1.5	1.6	2.0	2.2	1.7
Deaf-blind	—	—	0.1	(4)	0.1	(4)	(4)	0.1	(4)	(4)	(4)	(4)
Preschool [2]	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	8.2

Indicator 1:23

Table 1:23-1 Elementary and secondary students served in federally supported education programs for the handicapped, by type of handicap: School years ending 1977–1988—Continued

Type of handicap	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
	Number served as a percent of total enrollment [5]											
All conditions	8.33	8.61	9.14	9.62	10.11	10.46	10.73	10.92	10.98	10.93	10.97	11.10
Learning disabled	1.80	2.21	2.66	3.06	3.57	4.04	4.39	4.59	4.66	4.71	4.80	4.82
Speech impaired	2.94	2.81	2.85	2.85	2.85	2.83	2.85	2.87	2.87	2.85	2.85	2.38
Mentally retarded	2.16	2.14	2.12	2.09	2.02	1.96	1.91	1.85	1.77	1.67	1.61	1.45
Seriously emotionally disturbed	0.64	0.66	0.71	0.79	0.85	0.85	0.89	0.92	0.95	0.95	0.96	0.93
Hard of hearing and deaf	0.20	0.20	0.20	0.19	0.19	0.19	0.18	0.18	0.17	0.17	0.16	0.14
Orthopedically handicapped	0.20	0.20	0.16	0.16	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.12
Other health impaired	0.32	0.31	0.25	0.25	0.24	0.20	0.13	0.13	0.17	0.14	0.13	0.11
Visually impaired	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.06
Multihandicapped	—	—	0.12	0.14	0.17	0.18	0.16	0.17	0.17	0.22	0.24	0.19
Deaf-blind	—	—	0.01	0.01	0.01	(6)	0.01	0.01	(6)	0.01	(6)	(6)
Preschool [2]	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	0.91

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[1] Includes students served under Chapter I and Education of the Handicapped Act (EHA).

[2] Includes preschool children 3–5 years old served under the EHA and 0–5 years old served under Chapter I.

[3] Beginning in 1987–88, States are no longer required to report preschool handicapped students (0–5 years) by handicapping condition. Prior to this, these students were included in the overall counts by handicapping condition.

[4] Less than 0.05.

[5] Based on enrollment in public schools, kindergarten through 12th grade, including a relatively small number of prekindergarten students.

[6] Less than 0.005.

NOTE: Counts are based on reports from the 50 States and the District of Columbia only (figures from U.S. territories are not included). Some of the increases in 1987–88 may be due in part to new legislation passed in fall 1986 which mandates public school special education services for all handicapped children ages 3 through 5 by the 1990–91 school year and provides a State grant program for handicapped children from birth to age 2. Some data have been revised from previously published figures. Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Education, Office of Special Education and Rehabilitative Services, *Annual Report to Congress on the Implementation of the Education of the Handicapped Act*, various years; National Center for Education Statistics, Common Core of Data survey; and unpublished data.

Table 1:24–1 Public school teachers' evaluations of the change in disruptive behavior, by school characteristics: School year ending 1987

School characteristic	Total teachers (in thousands) [1]	Percent of teachers indicating that, compared to 5 years ago, student disruptive behavior is				
		Much less	Somewhat less	About the same	Somewhat more	Much more
All teachers	1,932	10	17	28	25	19
School level [2]						
Elementary	941	8	12	27	29	24
Middle-junior high	310	13	22	24	22	20
Senior high	647	12	23	32	22	12
School size						
Fewer than 400	465	11	16	28	25	21
400 to 999	985	10	17	28	26	19
1,000 or more	482	10	19	30	24	17
Metropolitan status						
Urban (within SMSA, central city)	405	15	16	20	23	26
Suburban (within SMSA, outside central city)	888	8	16	32	26	18
Rural (outside SMSA)	640	11	19	28	26	16

[1] Includes regular classroom teachers only; excludes librarians, special education teachers, and guidance counselors.

[2] Elementary schools—lowest grade is below 6 and the highest grade is below 9; middle-junior high schools—lowest grade is above 5 and the highest grade is below 10; senior high schools—lowest grade is above 6 and the highest grade is above 9; combined schools—lowest grade is below 6 and the highest grade is above 9. Combined schools are not listed as a separate school level because their number is so small; they are included in the totals and in analyses with other school characteristics. About 34,000 teachers taught in combined schools.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, October 1987.

Table 1:24–2 Percent of public school teachers indicating extent to which student behavior interferes with their teaching, by school level and metropolitan status: School year ending 1987

Extent	Total	School level *			Metropolitan status		
		Elementary	Middle-junior high	Senior high	Urban	Suburban	Rural
To a great extent	14	16	14	11	24	14	8
To a moderate extent	26	26	26	24	20	27	27
To a small extent	50	48	52	50	47	49	52
Not at all	11	9	8	15	8	11	13

* Elementary schools—lowest grade is below 6 and the highest grade is below 9; middle-junior high schools —lowest grade is above 5 and the highest grade is below 10; senior high schools—lowest grade is above 6 and the highest grade is above 9; Combined schools—lowest grade is below 6 and the highest grade is above 9. Combined schools are not listed as a separate school level because their number is so small; they are included in the totals and in analyses with other school characteristics. About 34,000 teachers taught in combined schools.

NOTE: Percents may not add to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, October 1987.

Table 1:24–3 Standard errors for total number of teachers and teacher evaluation of the change in disruptive behavior, by school characteristics: School year ending 1987 (table 1:24–1)

School characteristic	Percent of teachers indicating that, compared to 5 years ago, disruptive student behavior is				
	Much less now	Somewhat less	About the same	Somewhat more	Much more
All teachers	0.95	0.69	0.97	1.23	0.79
School level*					
Elementary	0.99	0.87	1.74	1.89	1.52
Middle-junior high	1.87	1.82	1.82	2.55	1.28
Senior high	1.44	1.43	1.54	1.85	1.20
Metropolitan status					
Urban (within SMSA, central city)	2.33	1.84	2.14	2.25	2.26
Suburban (within SMSA, outside central city)	1.23	1.22	1.48	2.03	1.26
Rural (outside SMSA)	1.15	1.18	1.67	1.57	1.55

* Elementary schools—lowest grade is below 6 and the highest grade is below 9; middle-junior high schools—lowest grade is above 5 and the highest grade is below 10; senior high schools—lowest grade is above 6 and the highest grade is above 9; combined schools—lowest grade is below 6 and the highest grade is above 9. Combined schools are not listed as a separate school level because their number is so small; they are included in the totals and in analyses with other school characteristics. About 34,000 teachers taught in combined schools.

SOURCE: U.S. Department of Education, Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, October 1987.

Table 1:24–4 Standard errors for percent of public school teachers indicating extent to which student behavior interferes with their teaching, by school level and metropolitan status: School year ending 1987 (table 1:24–2)

Extent	Total	School Level*			Metropolitan status		
		Elementary	Middle-junior high	Senior high	Urban	Suburban	Rural
To a great extent	0.71	1.39	1.28	1.11	1.04	1.18	0.83
To a moderate extent	1.13	2.10	1.60	1.41	2.60	1.64	1.49
To a small extent	0.87	1.93	1.73	1.50	2.92	1.39	1.62
Not at all	0.56	0.76	0.76	0.90	1.43	0.97	1.22

* Elementary schools—lowest grade is below 6 and the highest grade is below 9; middle-junior high schools—lowest grade is above 5 and the highest grade is below 10; senior high schools—lowest grade is above 6 and the highest grade is above 9; combined schools—lowest grade is below 6 and the highest grade is above 9. Combined schools are not listed as a separate school level because their number is so small; they are included in the totals and in analyses with other school characteristics. About 34,000 teachers taught in combined schools.

SOURCE: U.S. Department of Education, Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, October 1987.

Table 1:24–5 Standard errors for public school teachers' evaluation of the discipline policy of their schools, by school level and metropolitan status: School year ending 1987 (text table 1:24)

Policy	Total	School level*			Metropolitan status		
		Elementary	Middle-junior high	Senior high	Urban	Suburban	Rural
In writing	0.68	1.13	0.90	0.73	2.29	0.86	1.11
Strict enough	0.94	1.26	2.09	1.90	3.10	1.26	1.85
Comprehensive enough	1.16	1.80	1.85	1.85	2.39	1.20	1.74
Clear	1.31	1.70	1.86	1.86	2.98	1.57	1.46
Consistently applied	1.04	1.57	2.28	2.10	3.21	1.75	1.56
Publicized enough	0.88	1.86	1.76	1.95	3.12	1.49	1.35

* Elementary schools—lowest grade is below 6 and the highest grade is below 9; Middle-junior high schools—lowest grade is above 5 and the highest grade is below 10; Senior high schools—lowest grade is above 6 and the highest grade is above 9; Combined schools—lowest grade is below 6 and the highest grade is above 9. Combined schools are not listed as a separate school level because their number is so small; they are included in the totals and in analyses with other school characteristics. About 34,000 teachers taught in combined schools.

SOURCE: U.S. Department of Education, Center for Education Statistics, "Public School Teacher Perspectives on School Discipline," *OERI Bulletin*, October 1987.

Indicator 1:24

Supplemental note 1:24 Disruptive behavior in the public schools

The National Education Association (NEA) results were based on a two-stage probability sample of about 2,000 teachers randomly selected from lists of teachers provided by school districts. Response rates for the years included in this report ranged from 75 to 80 percent. The standard errors for the population estimates were reported to be less than 3 percent of the estimates. Differences of 5 percent or more between percentages were reported significant at the 95 percent level. Some differences between the NEA results and National Center for Education Statistics results may be partially due to survey procedures.

SOURCE: National Education Association, "Nationwide Teacher Opinion Poll, 1980," Bernard Bartholomew, Washington, D.C., page 3.

Table 1:25-1 Trends in the use of drugs and alcohol by high school seniors: 1975–1988

Substance used	Class of													
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
	Number													
Sample size	9,400	15,400	17,100	17,800	15,500	15,900	17,500	17,700	16,300	15,900	16,000	15,200	16,300	16,300
	Percent who ever used													
All illegal drugs*	55.2	58.3	61.6	64.1	65.1	65.4	65.6	64.4	62.9	61.6	60.6	57.6	56.6	53.9
Cocaine	9.0	9.7	10.8	12.9	15.4	15.7	16.5	16.0	16.2	16.1	17.3	16.9	15.2	12.1
Alcohol	90.4	91.9	92.5	93.1	93.0	93.2	92.6	92.8	92.6	92.6	92.2	91.3	92.2	92.0
	Percent who used substance in the last 12 months													
All illegal drugs*	45.0	48.1	51.1	53.8	54.2	53.1	52.1	49.4	47.4	45.8	46.3	44.3	41.7	38.5
Cocaine	5.6	6.0	7.2	9.0	12.0	12.3	12.4	11.5	11.4	11.6	13.1	12.7	10.3	7.9
Alcohol	84.8	85.7	87.0	87.7	88.1	87.9	87.0	86.8	87.3	86.0	85.6	84.5	85.7	85.3
	Percent who used substance in the last 30 days													
All illegal drugs*	30.7	34.2	37.6	38.9	38.9	37.2	36.9	32.5	30.5	29.2	29.7	27.1	24.7	21.3
Cocaine	1.9	2.0	2.9	3.9	5.7	5.2	5.8	5.0	4.9	5.8	6.7	6.2	4.3	3.4
Alcohol	68.2	68.3	71.2	72.1	71.8	72.0	70.7	69.7	69.4	67.2	65.9	65.3	66.4	63.9

* Includes marijuana, hallucinogens, cocaine, and heroin, and other opiates, stimulants, sedatives, or tranquilizers not prescribed by a doctor. About 75 percent of these users reported smoking marijuana.

SOURCE: U.S. Department of Health and Human Services, Alcohol, Drug Abuse, and Mental Health Administration, National Institute on Drug Abuse, *Drug Use Among American High School Students, College Students, and Other Young Adults*, 1989. See also U.S. Department of Education, *Schools Without Drugs*, 1986.

Table 1:25–2 Confidence intervals (95 percent level) for percent of high school seniors using drugs and alcohol (table 1:25–1)

Observed percent*		Number of cases		
		10,000	15,000	20,000
95	+	0.7	0.6	0.6
	-	0.8	0.7	0.7
90	+	0.9	0.9	0.8
	-	1.0	0.9	0.9
85	+	1.1	1.0	1.0
	-	1.2	1.1	1.1
80	+	1.3	1.2	1.1
	-	1.3	1.2	1.2
70	+	1.5	1.4	1.3
	-	1.5	1.4	1.3
50	+	1.6	1.5	1.4
	-	1.6	1.5	1.4
30	+	1.5	1.4	1.3
	-	1.5	1.4	1.3
20	+	1.3	1.2	1.2
	-	1.3	1.2	1.1
15	+	1.2	1.1	1.1
	-	1.1	1.0	1.0
10	+	1.0	0.9	0.9
	-	0.9	0.9	0.8
5	+	0.8	0.7	0.7
	-	0.7	0.6	0.6
3	+	0.6	0.6	0.5
	-	0.5	0.5	0.5
1	+	0.4	0.3	0.3
	-	0.3	0.3	0.2

* The table entries, when added to and subtracted from the observed percent, establish the limits of the 95 percent confidence interval (calculated as 1.96 sampling errors).

SOURCE: L.D. Johnston, J.G. Bachman, and P.M. O'Malley, *Monitoring the Future,* Institute for Social Research, University of Michigan, Ann Arbor, Michigan, 1984.

Table 1:26–1 Actual and adjusted average reading proficiency, by principals' ratings of school problems for 4th, 8th, and 11th graders: 1984

Grade and average rating of school problems [1]	Average reading proficiency	
	Actual	Adjusted [2]
Grade 4		
Not a problem	229.6	223.0
Minor problem	209.5	213.5
Moderate problem	189.4	204.0
Grade 8		
Not a problem	271.9	266.1
Minor problem	257.5	259.1
Moderate problem	243.1	252.0
Grade 11		
Not a problem	306.3	296.7
Minor problem	289.4	289.1
Moderate problem	272.4	281.6

[1] School problems were rated by the principal as not a problem, minor, moderate, or serious. The problems included in this analysis include student absenteeism, lack of parental interest, lack of discipline, lack of teacher commitment/motivation, teacher absenteeism, teacher turnover, low standards for students, and vandalism.

[2] Scores adjusted for race and ethnicity, language spoken in the home, parental education, and number of reading materials in the home.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "School Climate and Reading Performance," *Survey Report*, 1988.

Table 1:26–2 Principals' ratings of school problems, by grade and control of school: 1984

Grade and control of school	Average rating of school problems *		
	Not a problem	Minor	Moderate
	Percent of schools		
4th grade	56.4	42.3	1.3
Public	53.9	44.4	1.7
Private	66.1	34.0	0
8th grade	53.3	44.4	2.3
Public	46.9	49.9	3.2
Private	67.6	32.1	0.3
11th grade	11.9	73.9	14.2
Public	9.1	73.4	17.5
Private	22.6	76.0	1.4

* School problems were rated by the principal as not a problem, minor, moderate, or serious. The problems included in this analysis include student absenteeism, lack of parental interest, lack of discipline, lack of teacher commitment/ motivation, teacher absenteeism, teacher turnover, low standards for students, and vandalism.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "School Climate and Reading Performance," *Survey Report*, 1988.

Table 1:26–3 Sample sizes and standard errors for average rating of school problems, by grade and control of school: 1984 (table 1:26–2)

Grade and control of school	Sample size (number)	Average rating of school problems		
		Not a problem	Minor	Moderate
			Standard error	
4th grade	600	2.0	2.0	0.5
Public	478	2.3	2.3	0.6
Private	120	4.3	4.3	0.0
8th grade	437	2.4	2.4	0.7
Public	303	2.9	2.9	1.0
Private	133	4.1	4.1	0.5
11th grade	293	1.9	2.6	2.0
Public	246	1.8	2.8	2.4
Private	47	6.1	6.2	1.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, "School Problems and Reading Performance," *Survey Report*, 1988.

Supplemental note 1:26 Principals' perceptions of school climate and reading performance

This indicator is based on data from the 1983-84 National Assessment of Educational Progress (NAEP) in reading. The sample is nationally representative of school children aged 9, 13, and 17 and in grades 4, 8, and 11. See the data sources section of this book for further information on NAEP.

In 1983-84, NAEP also included a broad set of student, teacher, and school survey questions. The student demographic characteristics and home environment data used in this analysis were reported by the student: language spoken in the home, family education, and the presence of various reading materials in the home (the sum of "yes" answers to the presence of newspapers, dictionaries, encyclopedias, 25 or more books, magazines, and computers in the home).

Information about the students' schools was collected from a questionnaire filled out by the school's principal. The school information about school problems was gathered by asking principals the following question: Below is a partial list of school problems. To what degree are they characteristic of your school?

Problem	Serious	Moderate	Minor	Not a problem
Student absenteeism	4	3	2	1
Lack of parent interest	4	3	2	1
Discipline	4	3	2	1
Lack of teacher commitment or motivation	4	3	2	1
Teacher absenteeism	4	3	2	1
Teacher turnover	4	3	2	1
Low standards for students	4	3	2	1
Vandalism	4	3	2	1

Responses to these items were coded given the following weight: 1 for "not a problem", 2 for "minor" problem, 3 for "moderate" problem, and 4 for "serious" problem.

The average-rating-of-school-problems variable is the average for each school of principals' ratings of the eight school problem items. The averages were grouped as follows:

1 = averages greater than or equal to 1 and less than 1.5;

2 = averages greater than or equal to 1.5 and less than 2.5;

3 = averages greater than or equal to 2.5.

The observed and adjusted reading proficiency scale levels are the result of regression analysis predicting reading proficiency scale levels from principals' average ratings of school problems. First, a bivariate regression of reading scale scores by average rating of school problems was computed as the basis for the observed reading scores. Then a multiple regression of reading scale scores by student background characteristics and average rating of school problems was computed as the basis for the adjusted reading scores. The adjusted reading scores represent the predicted average reading scale scores for levels of the average rating on school problems after taking student background characteristics into account.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "School Climate and Reading Performance," *Survey Report,* 1988.

Indicator 1:27

Table 1:27-1 Percent of the public grading the public schools A or B: 1981-1988

Year	Rating of local public schools				Rating of public schools nationally			
	National totals	Public school parents	Non-public school parents	No children in school	National totals	Public school parents	Non-public school parents	No children in school
1981	36	46	25	31	20	—	—	—
1982	37	49	38	32	22	23	21	22
1983	31	43	27	28	19	19	16	19
1984	42	52	37	39	25	24	23	26
1985	43	52	33	39	27	32	23	26
1986	41	55	40	36	28	—	—	—
1987	43	56	25	39	26	30	17	26
1988	40	51	33	37	23	25	18	21

—Not available.

SOURCE: "The Annual Gallup Poll of the Public's Attitudes Toward the Public Schools," *Phi Delta Kappan*, September [various years].

Table 1:27–2 Sampling tolerances for percent differences from Gallup Polls (table 1:27–1)

Sample size	Recommended allowance for sampling error of a percent difference					
	Size of sample					
	1,500	1,000	750	600	400	200
	Percents near 20 or 80					
1,500	4					
1,000	4	5				
750	5	5	5			
600	5	5	6	6		
400	6	6	6	7	7	
200	8	8	8	8	9	10
	Percents near 50					
1,500	5					
1,000	5	6				
750	6	6	7			
600	6	7	7	7		
400	7	8	8	8	9	
200	10	10	10	10	11	13

NOTE: Table entries are in percentage points (at 95 percent confidence).

SOURCE: Alec M. Gallup and Stanley M. Elam, "The 20th Annual Gallup Poll of the Public's Attitudes Toward the Public Schools," *Phi Delta Kappan,* September 1988.

Indicator 1:28

Table 1:28–1 Teachers' perceptions of "major cause" of students' difficulties in school, by wealth of district: 1987

Cause	Total teachers	Wealth of district		
		Above average	Average for State	Below average
		Number		
Total	1,002	223	424	342
		Percent		
Children left on their own after school	51	54	52	48
Poverty in the student's home	47	42	42	54
Automatic promotion to next grade	44	36	46	48
Teachers not adapting to individual student needs	43	40	46	40
Single-parent families	42	46	43	40
Boring curriculum	34	29	36	34
Families where both parents work full time	25	25	26	25

SOURCE: *The Metropolitan Life Survey of The American Teacher 1987: Strengthening Links Between Home and School.*

Table 1:28–2 Parents' and teachers' perceptions of several steps that would "help a lot" to improve education: 1987

Step	Parents	Teachers
	Number	
Total	2,011	1,002
	Percent	
Having the school notify parents immediately about problems involving their child	88	77
Having parents limit television until all homework is finished	79	80
Having parents spend much more time with their children in support of school and teachers	70	84
Distributing a newsletter to parents about what's happening in school	68	51
Establishing a homework hotline students can call for homework advice	64	42
Having the school guide teachers more about how to involve parents better in the future	60	41
Getting teachers and parents to meet and talk about school policies	58	52

SOURCE: *The Metropolitan Life Survey of The American Teacher 1987: Strengthening Links Between Home and School.*

Table 1:28–3 Criticisms of parents that parents and teachers think are valid: 1987

Criticism	Parents	Teachers
	Number	
Total	2,011	1,002
	Percent saying "most" or "many"	
Leave their children alone too much on their own after school	59	62
Fail to discipline their children	58	51
Fail to motivate their children so that they want to learn in school	52	53
Take too little interest in their children's education	52	48
Neglect to see that their children's homework gets done	49	50
Fail to show respect for teachers	34	23
Set too high or too strict a standard for their children to meet	30	12

SOURCE: *The Metropolitan Life Survey of The American Teacher 1987: Strengthening Links Between Home and School.*

Table 1:28–4 Characteristics of children, by how often they are left alone after school, according to parents: 1987

Characteristic	Number of parents responding	How often the child is left alone after school		
		Never	1 or 2 days a week	Almost every day
		Percent of parents responding		
Total parents	2,011	58	17	24
Child's school level				
Elementary	898	75	13	12
Junior high	368	53	17	30
High school	503	40	21	38
Size of place				
Central city	490	58	14	26
Rest of metro area	963	59	17	23
Outside metro area	558	57	19	24
Race				
White	1,573	59	17	23
Black	211	51	17	31
Hispanic	150	62	15	21
Education of parent				
Less than high school	238	59	11	29
High school graduate	813	63	16	21
Some college	440	52	22	25
4-year college graduate	309	56	17	26
Beyond college	208	52	25	22

Table 1:28–4 Characteristics of children, by how often they are left alone after school, according to parents: 1987—Continued

Characteristic	Number of parents responding	How often the child is left alone after school		
		Never	1 or 2 days a week	Almost every day
		Percent of parents responding		
Status of parents				
One-parent families				
Not working	80	68	9	23
Work part time	64	48	17	35
Work full time	291	45	14	40
Two-parent families				
One not working	533	74	13	12
Both work, one part time	417	60	26	13
Both work full time	626	49	18	32
Family income				
$7,500 or less	130	59	12	28
$7,501 to $15,000	198	58	11	29
$15,001 to $25,000	397	60	15	24
$25,001 to $35,000	420	60	22	17
$35,001 to $50,000	436	57	18	24
$50,001 and over	305	52	21	26

SOURCE: *The Metropolitan Life Survey of The American Teacher 1987: Strengthening Links Between Home and School.*

Table 1:28–5 Sampling tolerances for percentages from Metropolitan Life polls (tables 1:28–1—1:28–4)

Percentages	Recommended allowance for sampling error of a percentage							
	Size of sample							
	2,000	1,500	1,000	800	600	400	200	100
	In percentage points (at 95 percent confidence)							
Near 10 or 90	1	2	2	2	2	3	4	6
Near 20 or 80	2	2	2	3	3	4	6	8
Near 30 or 70	2	2	3	3	4	4	6	9
Near 40 or 60	2	3	3	3	4	5	7	10
Near 50	2	3	3	3	4	5	7	10

SOURCE: *The Metropolitan Life Survey of The American Teacher 1987: Strengthening Links Between Home and School.*

Table 1:28–6 Sampling tolerances for percentage differences from Metropolitan Life Polls (tables 1:28–1 to 1:28–4)

In percentage points (at 95 percent confidence)

Sample size	Recommended allowance for sampling error of a percentage difference					
	Size of sample					
	2,000	1,000	800	500	300	100
			Percentages near 20 or 80			
1,000	3	4	4	4	5	8
800	3	4	4	4	5	8
500	4	4	4	4	6	9
300	5	5	5	6	6	9
100	8	8	8	9	9	11
			Percentages near 50			
1,000	4	4	5	5	6	10
800	4	5	5	6	7	10
500	5	5	6	6	7	11
300	6	6	7	7	8	11
100	10	10	10	11	11	14

SOURCE: *The Metropolitan Life Survey of The American Teacher 1987: Strengthening Links Between Home and School.*

Indicator 1:29

Table 1:29–1 Number of course units required for high school graduation in selected subjects, by State: 1988

State	English	Social studies	Mathematics	Science	Competency test required
Alabama	4.0	3.0	2.0	1.0	Yes
Alaska	4.0	3.0	2.0	2.0	
Arizona	4.0	2.5	2.0	2.0	Yes
Arkansas *	4.0	3.0	2.0	2.0	
California	3.0	3.0	2.0	2.0	Yes
Colorado	0.0	0.0	0.0	0.0	
Connecticut	4.0	3.0	3.0	2.0	
Delaware	4.0	3.0	2.0	2.0	
District of Columbia	4.0	2.0	2.0	2.0	Yes
Florida	4.0	3.0	3.0	3.0	Yes
Georgia	4.0	3.0	2.0	2.0	Yes
Hawaii	4.0	4.0	2.0	2.0	Yes
Idaho	4.0	2.0	2.0	2.0	
Illinois	3.0	2.0	2.0	1.0	
Indiana	3.0	2.0	1.0	1.0	
Iowa	0.0	0.0	0.0	0.0	
Kansas	4.0	3.0	2.0	2.0	
Kentucky	4.0	2.0	3.0	2.0	
Louisiana	4.0	3.0	3.0	3.0	Yes
Maine	4.0	1.0	0.0	0.0	
Maryland	4.0	3.0	3.0	2.0	Yes
Massachusetts	0.0	1.0	0.0	0.0	
Michigan	0.0	0.5	0.0	0.0	
Minnesota	3.0	2.0	0.0	0.0	
Mississippi	3.0	2.5	1.0	1.0	Yes
Missouri	3.0	2.0	2.0	2.0	
Montana	4.0	2.0	2.0	1.0	
Nebraska	0.0	0.0	0.0	0.0	Yes
Nevada	3.0	2.0	2.0	1.0	
New Hampshire	4.0	2.0	1.0	1.0	

Table 1:29-1 Number of course units required for high school graduation in selected subjects, by State: 1988—Continued

State	English	Social studies	Mathematics	Science	Competency test required
New Jersey	4.0	2.0	2.0	1.0	
New Mexico	4.0	2.0	2.0	2.0	Yes
New York	4.0	3.0	2.0	2.0	Yes
North Carolina	4.0	2.0	2.0	2.0	Yes
North Dakota	4.0	3.0	2.0	2.0	
Ohio	3.0	2.0	2.0	1.0	
Oklahoma	4.0	2.0	2.0	2.0	
Oregon	3.0	3.5	2.0	2.0	Yes
Pennsylvania	4.0	3.0	3.0	3.0	
Rhode Island	4.0	2.0	2.0	2.0	
South Carolina	4.0	3.0	3.0	2.0	
South Dakota	4.0	3.0	2.0	2.0	
Tennessee	4.0	1.5	2.0	2.0	Yes
Texas	4.0	3.0	3.0	2.0	Yes
Utah	3.0	3.0	2.0	2.0	
Vermont *	4.0	3.0	2.0	2.0	Yes
Virginia *	4.0	3.0	2.0	2.0	Yes
Washington	2.0	1.7	1.0	0.7	
West Virginia	4.0	3.0	2.0	2.0	
Wisconsin	4.0	3.0	2.0	2.0	
Wyoming	0.0	0.0	0.0	0.0	

* Requires a total of five units in mathematics and science with at least 2 units in each.

SOURCE: Council of Chief State School Officers, 1988 Policies and Practices Questionnaire.

Indicator 1:30

Table 1:30–1 Teacher preparation assessment requirements, by State: 1988

State	Admission to teacher education	Exit from teacher education	Initial or provisional certification	Regular or permanent certification	Recertification or maintenance of certification
Alabama	BS	(1)	No test	CK	No test
Alaska [2]	No test	No test	No test	No test	No test
Arizona	BS, PS	No test	BS, PS	No test	No test
Arkansas	BS	IO	PS, CK	PS, CK	No test
California	BS	No test	[3] BS, CK	[3] BS, CK	No test
Colorado	BS	No test	[4] BS	No test	No test
Connecticut	BS	No test	BS, CK	BS, CK, IO	No test
Delaware	No test	No test	BS	BS	No test
District of Columbia	(2)	(2)	BS, CK	BS, CK	No test
Florida	[5] No test	BS, PS, IO	BS, PS	BS, PS, CK, IO	[6] CK
Georgia	No test	No test	CK	CK, IO	CK
Hawaii	BS	IO	BS, PS, CK, IO	IO	IO
Idaho	No test	No test	[7] BS, PS, CS	No test	No test
Illinois	[8] No test	No test	BS, CK	BS, CK	No test
Indiana	No test	No test	BS, PS, CK	No test	No test
Iowa	No test	No test	No test	No test	IO
Kansas	BS	No test	No test	BS, PS, IO	No test
Kentucky	BS	PS, CK, IO	PS, CK, IO	PS, CK, IO	No test
Louisiana	CK	IO	No test	BS, PS, CK	No test
Maine	No test	No test	BS, PS, IO	No test	No test
Maryland	No test	No test	BS, PS, CK	No test	No test
Massachusetts	No test	IO	No test	IO	No test
Michigan	[9] BS	[9] CK	[9] CK	No test	No test
Minnesota	BS	IO	No test	No test	No test
Mississippi	BS	IO	BS, PS, CK	IO	No test
Missouri	BS	[10] PS, CK, IO	IO	IO	IO
Montana	No test	No test	BS, PS	BS, PS	No test
Nebraska	BS	No test	No test	BS	No test
Nevada	BS	PS, CK	PS, CK	PS, CK	CK
New Hampshire	BS	No test	No test	No test	IO
New Jersey	BS, IO	IO	CK, IO	CK	No test
New Mexico	BS	IO	BS, PS, CK	BS, PS, CK, IO	IO
New York	No test	No test	BS, PS	BS, PS	BS, PS
North Carolina	BS	PS, CK	PS, CK, IO	IO	IO
North Dakota	BS	PS, CK	No test	No test	No test

Table 1:30–1 Teacher preparation assessment requirements, by State: 1988—Continued

State	Admission to teacher education	Exit from teacher education	Initial or provisional certification	Regular or permanent certification	Recertification or maintenance of certification
Ohio [11]	BS, IO	BS, PS, CK, IO	BS, PS, CK	No test	No test
Oklahoma	BS, PS	No test	CK	CK	No test
Oregon	BS, CK	No test	BS	IO	No test
Pennsylvania [11]	No test	No test	BS, PS, CK	No test	No test
Rhode Island	No test	IO	BS, PS, IO	No test	No test
South Carolina	BS	PS, CK, IO	PS, CK	PS, CK	No test
South Dakota	BS	No test	No test	No test	No test
Tennessee	PS	No test	PS, CK	No test	No test
Texas	BS	IO	PS, CK	IO	IO
Utah	No test	No test	IO	IO	No test
Vermont	No test	No test	No test	No test	No test
Virginia	BS, PS, CK, IO	No test	BS, PS, CK	IO	No test
Washington	BS	[12] No test	[12] No test	No test	No test
West Virginia	BS	CK, IO	CK, IO	No test	No test
Wisconsin	[13] BS	[14] CK	[14] BS, CK	[14] BS, CK	No test
Wyoming	BS	No test	No test	No test	No test

Key to types of tests required:
BS = Basic skills;
PS = Professional skills;
CK = Content knowledge;
IO = In-class observation.

[1] Requirements or tests are under development.

[2] No State policy, some tests administered by universities.

[3] May be waived by the State.

[4] Basic skills test required for persons holding out-of-State certificates.

[5] Provided student's score is in the 40th or higher percentile on the ACT.

[6] Optional in lieu of other requirements.

[7] Also required for reinstatement of expired license.

[8] Institutions must test for reading, language arts, and mathematics; no specific test is required.

[9] Required in 1990.

[10] Required beginning in 1992.

[11] Tests for admission to and exit from teacher education programs are established by the college or university.

[12] Professional skills test planned.

[13] Required fall of 1989.

[14] Required spring of 1991.

SOURCE: Council of Chief State School Officers, 1988 Policies and Practices Questionnaire.

Table 2:1-1 **Years of college completed by population 25-34 years old, by race and ethnicity: 1970-1988**

Year (March)	All	White	Black	Hispanic *
		Percent who completed 1 or more years		
1970	29.8	31.2	15.0	—
1971	31.3	32.8	16.3	—
1972	33.3	34.8	18.7	—
1973	34.2	35.5	20.4	—
1974	37.4	38.7	23.0	18.7
1975	39.4	40.4	25.9	19.6
1976	41.3	42.7	24.9	20.9
1977	43.6	45.1	28.6	21.9
1978	44.8	46.1	32.6	22.7
1979	45.5	47.0	31.3	23.1
1980	45.8	47.2	33.6	23.6
1981	44.9	45.9	34.1	24.4
1982	45.2	46.2	35.8	23.8
1983	46.2	47.3	33.0	24.7
1984	45.6	47.1	32.8	26.0
1985	45.8	46.8	35.3	25.6
1986	45.7	46.6	36.2	24.9
1987	45.4	46.3	35.0	27.1
1988	44.8	45.6	34.1	29.0
		Percent who completed 2 or more years		
1970	24.3	25.4	11.7	—
1971	25.2	26.5	12.2	—
1972	27.0	28.2	13.9	—
1973	27.8	29.0	14.6	—
1974	30.7	32.0	16.0	13.8
1975	32.2	33.2	19.4	13.5
1976	33.8	35.0	18.9	14.7
1977	35.9	37.3	21.1	15.3
1978	36.8	38.1	24.1	16.9
1979	37.3	38.7	23.7	17.1
1980	37.6	38.9	24.9	17.8
1981	36.8	37.8	25.5	17.8
1982	37.4	38.4	27.3	18.7

Table 2:1-1 Years of college completed by population 25-34 years old, by race and ethnicity: 1970-1988—Continued

Year (March)	All	White	Black	Hispanic *
	Percent who completed 2 or more years—Continued			
1983	38.4	39.5	25.3	19.4
1984	37.7	39.1	24.7	19.7
1985	37.8	38.7	28.0	19.5
1986	38.0	38.9	28.5	19.5
1987	37.8	38.7	26.6	21.2
1988	37.4	38.1	26.9	22.5
	Percent who completed 4 or more years			
1970	15.8	16.6	6.1	—
1971	16.3	17.2	6.3	—
1972	17.9	18.8	7.9	—
1973	18.2	19.0	8.3	—
1974	20.0	21.0	8.1	5.7
1975	21.4	22.2	10.7	7.0
1976	22.6	23.5	11.3	7.4
1977	23.8	25.0	11.4	6.9
1978	23.6	24.8	11.4	8.8
1979	23.8	24.9	12.8	7.8
1980	24.1	25.4	12.4	8.9
1981	23.2	24.3	11.7	8.8
1982	23.8	24.9	12.6	9.7
1983	24.4	25.5	13.6	10.2
1984	24.3	25.5	13.1	10.1
1985	23.8	24.8	13.7	10.5
1986	24.0	25.1	13.6	9.9
1987	23.9	25.1	12.3	9.8
1988	23.7	24.5	13.1	11.9

—Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Educational Attainment in the United States," various years, *Current Population Reports*, Series P-20; and unpublished tabulations from the March supplement to the Current Population Survey.

Table 2:1-2 **Standard errors for years of college completed by population 25-34 years old, by race and ethnicity: 1970-1988 (table 2:1-1)**

Year (March)	All	White	Black	Hispanic*
		1 or more years		
1970	0.4	0.4	1.0	—
1971	0.4	0.4	1.1	—
1972	0.4	0.4	1.1	—
1973	0.4	0.4	1.1	—
1974	0.4	0.4	1.2	1.4
1975	0.4	0.4	1.2	1.4
1976	0.4	0.4	1.2	1.4
1977	0.4	0.4	1.2	1.4
1978	0.4	0.4	1.2	1.4
1979	0.4	0.4	1.2	1.4
1980	0.4	0.4	1.2	1.3
1981	0.4	0.4	1.2	1.2
1982	0.4	0.4	1.2	1.2
1983	0.4	0.4	1.1	1.2
1984	0.4	0.4	1.1	1.2
1985	0.4	0.4	1.1	1.3
1986	0.4	0.4	1.1	1.2
1987	0.4	0.4	1.1	1.2
1988	0.4	0.4	1.1	1.2
		2 or more years		
1970	0.4	0.4	0.9	—
1971	0.4	0.4	0.9	—
1972	0.4	0.4	1.0	—
1973	0.4	0.4	1.0	—
1974	0.4	0.4	1.0	1.2
1975	0.4	0.4	1.1	1.2
1976	0.4	0.4	1.0	1.2
1977	0.4	0.4	1.1	1.2
1978	0.4	0.4	1.1	1.2
1979	0.4	0.4	1.1	1.2
1980	0.4	0.4	1.1	1.2
1981	0.4	0.4	1.1	1.1
1982	0.4	0.4	1.1	1.1
1983	0.4	0.4	1.0	1.1
1984	0.4	0.4	1.0	1.1
1985	0.4	0.4	1.0	1.2
1986	0.4	0.4	1.0	1.1
1987	0.4	0.4	1.0	1.1
1988	0.4	0.4	1.0	1.1

Table 2:1–2 Standard errors for years of college completed by population 25–34 years old, by race and ethnicity: 1970–1988 (table 2:1–1)—Continued

Year (March)	All	White	Black	Hispanic*
		4 or more years		
1970	0.3	0.4	0.7	—
1971	0.3	0.4	0.7	—
1972	0.3	0.4	0.8	—
1973	0.3	0.4	0.8	—
1974	0.3	0.4	0.8	0.8
1975	0.3	0.4	0.8	0.9
1976	0.3	0.4	0.8	0.9
1977	0.3	0.4	0.8	0.9
1978	0.3	0.4	0.8	0.9
1979	0.3	0.4	0.8	0.9
1980	0.3	0.4	0.8	0.9
1981	0.3	0.4	0.8	0.8
1982	0.3	0.4	0.8	0.8
1983	0.3	0.4	0.8	0.8
1984	0.3	0.4	0.8	0.8
1985	0.3	0.4	0.8	0.9
1986	0.3	0.4	0.8	0.8
1987	0.3	0.4	0.7	0.8
1988	0.3	0.3	0.7	0.8

—Not available.

* Hispanics may be of any race.

SOURCE: U.S.Department of Commerce, Bureau of the Census, "Educational Attainment in the United States," various years, *Current Population Reports,* Series P–20; reports and unpublished tabulations from the March supplement to the Current Population Survey.

Indicator 2:2

Table 2:2-1 Number of degrees conferred at institutions of higher education, by level of degree: Academic years ending 1971–1986

Year	Total	Associate degrees	Bachelor's degrees	Master's degrees	Doctor's degrees	First-professional degrees *
1971	1,392,902	252,610	839,730	230,509	32,107	37,946
1972	1,507,799	292,119	887,273	251,633	33,363	43,411
1973	1,586,702	316,174	922,362	263,371	34,777	50,018
1974	1,654,365	343,924	945,776	277,033	33,816	53,816
1975	1,665,553	360,171	922,933	292,450	34,083	55,916
1976	1,725,684	391,454	925,746	311,771	34,064	62,649
1977	1,740,681	406,377	919,549	317,164	33,232	64,359
1978	1,743,782	412,246	921,204	311,620	32,131	66,581
1979	1,726,749	402,702	921,390	301,079	32,730	68,848
1980	1,731,154	400,910	929,417	298,081	32,615	70,131
1981	1,752,170	416,377	935,140	295,739	32,958	71,956
1982	1,787,798	434,515	952,998	295,546	32,707	72,032
1983	1,821,783	456,441	969,510	289,921	32,775	73,136
1984	1,818,604	452,416	974,309	284,263	33,209	74,407
1985	1,828,446	454,712	979,477	286,251	32,943	75,063
1986	1,830,000	446,047	987,823	288,567	33,653	73,910

* The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:2–2 **Percent change in the number of degrees conferred at institutions of higher education since 1971, by level of degree: Academic years ending 1972–1986**

Year	Total	Associate degrees	Bachelor's degrees	Master's degrees	Doctor's degrees	First-professional degrees *
1972	8.2	15.6	5.7	9.2	3.9	14.4
1973	13.9	25.2	9.8	14.3	8.3	31.8
1974	18.8	36.1	12.6	20.2	5.3	41.8
1975	19.6	42.6	9.9	26.9	6.2	47.4
1976	23.9	55.0	10.2	35.3	6.1	65.1
1977	25.0	60.9	9.5	37.6	3.5	69.6
1978	25.2	63.2	9.7	35.2	0.1	75.5
1979	24.0	59.4	9.7	30.6	1.9	81.4
1980	24.3	58.7	10.7	29.3	1.6	84.8
1981	25.8	64.8	11.4	28.3	2.7	89.6
1982	28.4	72.0	13.5	28.2	1.9	89.8
1983	30.8	80.7	15.5	25.8	2.1	92.7
1984	30.6	79.1	16.0	23.3	3.4	96.1
1985	31.3	80.0	16.6	24.2	2.6	97.8
1986	31.4	76.6	17.6	25.2	4.8	94.8

* The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Indicator 2:3

Table 2:3–1 Number of bachelor's degrees conferred, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total	839,730	922,362	922,933	919,549	921,390
Humanities and social/behavioral sciences	336,627	356,877	338,642	310,467	288,332
Humanities	143,511	153,260	152,489	146,215	137,949
Social and behavioral sciences	193,116	203,617	186,153	164,252	150,383
Natural and computer sciences and engineering	134,390	141,565	142,585	145,988	154,953
Natural sciences	81,956	85,996	90,700	90,298	83,859
Life sciences	35,743	42,233	51,741	53,605	48,846
Physical sciences	21,412	20,696	20,778	22,497	23,207
Mathematics	24,801	23,067	18,181	14,196	11,806
Computer sciences and engineering	52,434	55,569	51,885	55,690	71,094
Computer and information sciences	2,388	4,304	5,033	6,407	8,719
Engineering	50,046	51,265	46,852	49,283	62,375
Technical/professional *	368,713	423,920	441,706	463,094	478,105
Education	176,614	194,229	167,015	143,722	126,109
Business and other technical/professional *	192,099	229,691	274,691	319,372	351,996
Business and management	114,865	126,263	133,010	150,964	171,764
Other technical/professional *	77,234	103,428	141,681	168,408	180,232

Field of study	1981	1983	1985	1986
Total	935,140	969,510	979,477	987,823
Humanities and social/behavioral sciences	275,179	268,662	263,477	266,558
Humanities	134,001	133,210	132,205	132,334
Social and behavioral sciences	141,178	135,452	131,272	134,224
Natural and computer sciences and engineering	168,367	189,620	212,306	214,403
Natural sciences	78,246	75,840	77,323	76,561
Life sciences	43,216	39,982	38,445	38,524
Physical sciences	23,952	23,405	23,732	21,731
Mathematics	11,078	12,453	15,146	16,306
Computer sciences and engineering	90,121	113,780	134,983	137,842
Computer and information sciences	15,121	24,510	38,878	41,889
Engineering	75,000	89,270	96,105	95,953
Technical/professional *	491,594	511,228	503,694	506,862
Education	108,309	97,991	88,161	87,221
Business and other technical/professional *	383,285	413,237	415,533	419,641
Business and management	199,338	226,893	233,351	238,160
Other technical/professional *	183,947	186,344	182,182	181,481

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:3–2 Percent change in number of bachelor's degrees conferred since 1971, by field of study: Selected academic years ending 1973–1986

Field of study	1973	1975	1977	1979
Total	9.8	9.9	9.5	9.7
Humanities and social/behavioral sciences	6.0	0.6	-7.8	-14.3
Humanities	6.8	6.3	1.9	-3.9
Social and behavioral sciences	5.4	-3.6	-14.9	-22.1
Natural and computer sciences and engineering	5.3	6.1	8.6	15.3
Natural sciences	4.9	10.7	10.2	2.3
Life sciences	18.2	44.8	50.0	36.7
Physical sciences	-3.3	-3.0	5.1	8.4
Mathematics	-7.0	-26.7	-42.8	-52.4
Computer sciences and engineering	6.0	-1.0	6.2	35.6
Computer and information sciences	80.2	110.8	168.3	265.1
Engineering	2.4	-6.4	-1.5	24.6
Technical/professional *	15.0	19.8	25.6	29.7
Education	10.0	-5.4	-18.6	-28.6
Business and other technical/professional *	17.6	43.0	66.3	83.2
Business and management	8.9	15.8	31.4	49.5
Other technical/professional *	33.9	83.4	118.0	133.4

Field of study	1981	1983	1985	1986
Total	11.4	15.5	16.6	17.6
Humanities and social/behavioral sciences	-18.3	-20.2	-21.7	-20.8
Humanities	-6.6	-7.2	-7.9	-7.8
Social and behavioral sciences	-26.9	-29.9	-32.0	-30.5
Natural and computer sciences and engineering	25.3	41.1	58.0	59.5
Natural sciences	-4.5	-7.5	-5.7	-6.6
Life sciences	20.9	11.9	7.6	7.8
Physical sciences	11.9	9.3	10.8	1.5
Mathematics	-55.3	-49.8	-38.9	-34.3
Computer sciences and engineering	71.9	117.0	157.4	162.9
Computer and information sciences	533.2	926.4	1,528.1	1,654.1
Engineering	49.9	78.4	92.0	91.7
Technical/professional *	33.3	38.7	36.6	37.5
Education	-38.7	-44.5	-50.1	-50.6
Business and other technical/professional *	99.5	115.1	116.3	118.5
Business and management	73.5	97.5	103.2	107.3
Other technical/professional *	138.2	141.3	135.9	135.0

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:3–3 Percentage distribution of bachelor's degrees conferred, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	40.1	38.7	36.7	33.8	31.3
Humanities	17.1	16.6	16.5	15.9	15.0
Social and behavioral sciences	23.0	22.1	20.2	17.9	16.3
Natural and computer sciences and engineering	16.0	15.3	15.4	15.9	16.8
Natural sciences	9.8	9.3	9.8	9.8	9.1
Life sciences	4.3	4.6	5.6	5.8	5.3
Physical sciences	2.5	2.2	2.3	2.4	2.5
Mathematics	3.0	2.5	2.0	1.5	1.3
Computer sciences and engineering	6.2	6.0	5.6	6.1	7.7
Computer and information sciences	0.3	0.5	0.5	0.7	0.9
Engineering	6.0	5.6	5.1	5.4	6.8
Technical/professional *	43.9	46.0	47.9	50.4	51.9
Education	21.0	21.1	18.1	15.6	13.7
Business and other technical/professional *	22.9	24.9	29.8	34.7	38.2
Business and management	13.7	13.7	14.4	16.4	18.6
Other technical/professional *	9.2	11.2	15.4	18.3	19.6

Field of study	1981	1983	1985	1986
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	29.4	27.7	26.9	27.0
Humanities	14.3	13.7	13.5	13.4
Social and behavioral sciences	15.1	14.0	13.4	13.6
Natural and computer sciences and engineering	18.0	19.6	21.7	21.7
Natural sciences	8.4	7.8	7.9	7.8
Life sciences	4.6	4.1	3.9	3.9
Physical sciences	2.6	2.4	2.4	2.2
Mathematics	1.2	1.3	1.5	1.7
Computer sciences and engineering	9.6	11.7	13.8	14.0
Computer and information sciences	1.6	2.5	4.0	4.2
Engineering	8.0	9.2	9.8	9.7
Technical/professional *	52.6	52.7	51.4	51.3
Education	11.6	10.1	9.0	8.8
Business and other technical/professional *	41.0	42.6	42.4	42.5
Business and management	21.3	23.4	23.8	24.1
Other technical/professional *	19.7	19.2	18.6	18.4

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Indicator 2:4

Table 2:4–1 Number of master's degrees conferred, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total	230,509	263,371	292,450	317,164	301,079
Humanities and social/behavioral sciences	50,259	53,065	55,559	54,655	49,189
Humanities	29,352	29,946	31,601	30,959	28,379
Social and behavioral sciences	20,907	23,119	23,958	23,696	20,810
Natural and computer sciences and engineering	35,317	36,280	34,331	35,183	33,868
Natural sciences	17,286	17,548	16,684	16,140	15,318
Life sciences	5,728	6,263	6,550	7,114	6,831
Physical sciences	6,367	6,257	5,807	5,331	5,451
Mathematics	5,191	5,028	4,327	3,695	3,036
Computer sciences and engineering	18,031	18,732	17,647	19,043	18,550
Computer and information sciences	1,588	2,113	2,299	2,798	3,055
Engineering	16,443	16,619	15,348	16,245	15,495
Technical/professional *	144,933	174,026	202,560	227,326	218,022
Education	88,952	105,565	120,169	126,825	111,995
Business and other technical/professional *	55,981	68,461	82,391	100,501	106,027
Business and management	26,481	31,007	36,247	46,420	50,372
Other technical/professional *	29,500	37,454	46,144	54,081	55,655

Field of study	1981	1983	1985	1986
Total	295,739	289,921	286,251	288,567
Humanities and social/behavioral sciences	47,873	46,276	45,922	45,964
Humanities	28,020	26,786	27,134	27,243
Social and behavioral sciences	19,853	19,490	18,788	18,721
Natural and computer sciences and engineering	34,756	38,494	42,395	43,805
Natural sciences	13,829	13,823	13,737	14,074
Life sciences	5,978	5,696	5,059	5,013
Physical sciences	5,284	5,290	5,796	5,902
Mathematics	2,567	2,837	2,882	3,159
Computer sciences and engineering	20,927	24,671	28,658	29,731
Computer and information sciences	4,218	5,321	7,101	8,070
Engineering	16,709	19,350	21,557	21,661
Technical/professional *	213,110	205,151	197,934	198,798
Education	98,938	84,853	76,137	76,353
Business and other technical/professional*	114,172	120,298	121,797	122,445
Business and management	57,898	65,319	67,527	67,137
Other technical/professional *	56,274	54,979	54,270	55,308

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, 1988 (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:4–2 Percent change in number of master's degrees conferred since 1971, by field of study: Selected academic years ending 1973–1986

Field of study	1973	1975	1977	1979
Total	14.3	26.9	37.6	30.6
Humanities and social/behavioral sciences	5.6	10.5	8.7	-2.1
Humanities	2.0	7.7	5.5	-3.3
Social and behavioral sciences	10.6	14.6	13.3	-0.5
Natural and computer sciences and engineering	2.7	-2.8	-0.4	-4.1
Natural sciences	1.5	-3.5	-6.6	-11.4
Life sciences	9.3	14.4	24.2	19.3
Physical sciences	-1.7	-8.8	-16.3	-14.4
Mathematics	-3.1	-16.6	-28.8	-41.5
Computer sciences and engineering	3.9	-2.1	5.6	2.9
Computer and information sciences	33.1	44.8	76.2	92.4
Engineering	1.1	-6.7	-1.2	-5.8
Technical/professional *	20.1	39.8	56.8	50.4
Education	18.7	35.1	42.6	25.9
Business and other technical/professional *	22.3	47.2	79.5	89.4
Business and management	17.1	36.9	75.3	90.2
Other technical/professional *	27.0	56.4	83.3	88.7

Field of study	1981	1983	1985	1986
Total	28.3	25.8	24.2	25.2
Humanities and social/behavioral sciences	-4.7	-7.9	-8.6	-8.5
Humanities	-4.5	-8.7	-7.6	-7.2
Social and behavioral sciences	-5.0	-6.8	-10.1	-10.5
Natural and computer sciences and engineering	-1.6	9.0	20.0	24.0
Natural sciences	-20.0	-20.0	-20.5	-18.6
Life sciences	4.4	-0.6	-11.7	-12.5
Physical sciences	-17.0	-16.9	-9.0	-7.3
Mathematics	-50.5	-45.3	-44.5	-39.1
Computer sciences and engineering	16.1	36.8	58.9	64.9
Computer and information sciences	165.6	235.1	347.2	408.2
Engineering	1.6	17.7	31.1	31.7
Technical/professional *	47.0	41.5	36.6	37.2
Education	11.2	-4.6	-14.4	-14.2
Business and other technical/professional *	103.9	114.9	117.6	118.7
Business and management	118.6	146.7	155.0	153.5
Other technical/professional *	90.8	86.4	84.0	87.5

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Indicator 2:4

Table 2:4–3 Percentage distribution of master's degrees conferred, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total percent	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	21.8	20.1	19.0	17.2	16.3
Humanities	12.7	11.4	10.8	9.8	9.4
Social and behavioral sciences	9.1	8.8	8.2	7.5	6.9
Natural and computer sciences and engineering	15.3	13.8	11.7	11.1	11.2
Natural sciences	7.5	6.7	5.7	5.1	5.1
Life sciences	2.5	2.4	2.2	2.2	2.3
Physical sciences	2.8	2.4	2.0	1.7	1.8
Mathematics	2.3	1.9	1.5	1.2	1.0
Computer sciences and engineering	7.8	7.1	6.0	6.0	6.2
Computer and information sciences	0.7	0.8	0.8	0.9	1.0
Engineering	7.1	6.3	5.2	5.1	5.1
Technical/professional *	62.9	66.1	69.3	71.1	72.4
Education	38.6	40.1	41.1	40.0	37.2
Business and other technical/professional *	24.3	26.0	28.2	31.7	35.2
Business and management	11.5	11.8	12.4	14.6	16.7
Other technical/professional *	12.8	14.2	15.8	17.1	18.5

Field of study	1981	1983	1985	1986
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	16.2	16.0	16.0	15.9
Humanities	9.5	9.2	9.5	9.4
Social and behavioral sciences	6.7	6.7	6.6	6.5
Natural and computer sciences and engineering	11.8	13.3	14.8	15.2
Natural sciences	4.7	4.8	4.8	4.9
Life sciences	2.0	2.0	1.8	1.7
Physical sciences	1.8	1.8	2.0	2.0
Mathematics	0.9	1.0	1.0	1.1
Computer sciences and engineering	7.1	8.5	10.0	10.3
Computer and information sciences	1.4	1.8	2.5	2.8
Engineering	5.6	6.7	7.5	7.5
Technical/professional *	72.1	70.8	69.1	68.9
Education	33.5	29.3	26.6	26.5
Business and other technical/professional *	38.6	41.5	42.5	42.4
Business and management	19.6	22.5	23.6	23.3
Other technical/professional *	19.0	19.0	19.0	19.2

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:4–4 Number of doctor's degrees conferred, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979	1981	1983	1985	1986
Total	32,107	34,777	34,083	33,232	32,730	32,958	32,775	32,943	33,653
Humanities and social/behavioral sciences	9,801	11,704	11,959	11,732	11,356	10,818	10,602	10,211	10,602
Humanities	4,360	5,385	5,308	5,187	5,336	4,749	4,563	4,452	4,559
Social and behavioral sciences	5,441	6,319	6,651	6,545	6,020	6,069	6,039	5,759	6,043
Natural and computer sciences and engineering	13,000	12,398	11,306	10,363	10,116	10,400	10,401	11,012	11,405
Natural sciences	9,234	8,710	7,985	7,561	7,374	7,587	7,308	7,534	7,651
Life sciences	3,645	3,636	3,384	3,397	3,542	3,718	3,341	3,432	3,358
Physical sciences	4,390	4,006	3,626	3,341	3,102	3,141	3,269	3,403	3,551
Mathematics	1,199	1,068	975	823	730	728	698	699	742
Computer sciences and engineering	3,766	3,688	3,321	2,802	2,742	2,813	3,093	3,478	3,754
Computer and information sciences	128	196	213	216	236	252	262	248	344
Engineering	3,638	3,492	3,108	2,586	2,506	2,561	2,831	3,230	3,410
Technical/professional *	9,306	10,675	10,818	11,137	11,258	11,740	11,772	11,720	11,646
Education	6,403	7,318	7,446	7,963	7,736	7,900	7,551	7,151	7,110
Business and other technical/professional*	2,903	3,357	3,372	3,174	3,522	3,840	4,221	4,569	4,536
Business and management	807	923	1,009	863	860	842	809	866	969
Other technical/professional *	2,096	2,434	2,363	2,311	2,662	2,998	3,412	3,703	3,567

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:4–5 **Percent change in number of doctor's degrees conferred since 1971, by field of study: Selected academic years ending 1973–1986**

Field of study	1973	1975	1977	1979
Total	8.3	6.2	3.5	1.9
Humanities and social/behavioral sciences	19.4	22.0	19.7	15.9
Humanities	23.5	21.7	19.0	22.4
Social and behavioral sciences	16.1	22.2	20.3	10.6
Natural and computer sciences and engineering	-4.6	-13.0	-20.3	-22.2
Natural sciences	-5.7	-13.5	-18.1	-20.1
Life sciences	-0.2	-7.2	-6.8	-2.8
Physical sciences	-8.7	-17.4	-23.9	-29.3
Mathematics	-10.9	-18.7	-31.4	-39.1
Computer sciences and engineering	-2.1	-11.8	-25.6	-27.2
Computer and information sciences	53.1	66.4	68.8	84.4
Engineering	-4.0	-14.6	-28.9	-31.1
Technical/professional *	14.7	16.2	19.7	21.0
Education	14.3	16.3	24.4	20.8
Business and other technical/professional *	15.6	16.2	9.3	21.3
Business and management	14.4	25.0	6.9	6.6
Other technical/professional *	16.1	12.7	10.3	27.0

Field of study	1981	1983	1985	1986
Total	2.7	2.1	2.6	4.8
Humanities and social/behavioral sciences	10.4	8.2	4.2	8.2
Humanities	8.9	4.7	2.1	4.6
Social and behavioral sciences	11.5	11.0	5.8	11.1
Natural and computer sciences and engineering	-20.0	-20.0	-15.3	-12.3
Natural sciences	-17.8	-20.9	-18.4	-17.1
Life sciences	2.0	-8.3	-5.8	-7.9
Physical sciences	-28.5	-25.5	-22.5	-19.1
Mathematics	-39.3	-41.8	-41.7	-38.1
Computer sciences and engineering	-25.3	-17.9	-7.6	-0.3
Computer and information sciences	96.9	104.7	93.8	168.8
Engineering	-29.6	-22.2	-11.2	-6.3
Technical/professional *	26.2	26.5	25.9	25.1
Education	23.4	17.9	11.7	11.0
Business and other technical/professional *	32.3	45.4	57.4	56.3
Business and management	4.3	0.2	7.3	20.1
Other technical/professional *	43.0	62.8	76.7	70.2

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:4–6 Percentage distribution of doctor's degrees conferred, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979	1981	1983	1985	1986
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	30.5	33.7	35.1	35.3	34.7	32.8	32.3	31.0	31.5
Humanities	13.6	15.5	15.6	15.6	16.3	14.4	13.9	13.5	13.5
Social and behavioral sciences	16.9	18.2	19.5	19.7	18.4	18.4	18.4	17.5	18.0
Natural and computer sciences and engineering	40.5	35.6	33.2	31.2	30.9	31.6	31.7	33.4	33.9
Natural sciences	28.8	25.0	23.4	22.8	22.5	23.0	22.3	22.9	22.7
Life sciences	11.4	10.5	9.9	10.2	10.8	11.3	10.2	10.4	10.0
Physical sciences	13.7	11.5	10.6	10.1	9.5	9.5	10.0	10.3	10.6
Mathematics	3.7	3.1	2.9	2.5	2.2	2.2	2.1	2.1	2.2
Computer sciences and engineering	11.7	10.6	9.7	8.4	8.4	8.5	9.4	10.6	11.2
Computer and information sciences	0.4	0.6	0.6	0.6	0.7	0.8	0.8	0.8	1.0
Engineering	11.3	10.0	9.1	7.8	7.7	7.8	8.6	9.8	10.1
Technical/professional *	29.0	30.7	31.7	33.5	34.4	35.6	35.9	35.6	34.6
Education	19.9	21.0	21.8	24.0	23.6	24.0	23.0	21.7	21.1
Business and other technical/professional *	9.0	9.7	9.9	9.6	10.8	11.7	12.9	13.9	13.5
Business and management	2.5	2.7	3.0	2.6	2.6	2.6	2.5	2.6	2.9
Other technical/professional *	6.5	7.0	6.9	7.0	8.1	9.1	10.4	11.2	10.6

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Indicator 2:5

Table 2:5-1 Number of degrees conferred, by race and ethnicity and degree level: Selected academic years ending 1977–1985

Race and ethnicity	1977	1979	1981	1985
	Bachelor's degrees			
Total	915,131	916,347	934,800	968,311
White, non-Hispanic	805,186	799,617	807,319	826,106
Black, non-Hispanic	58,515	60,130	60,673	57,473
Hispanic	18,663	20,029	21,832	25,874
Asian or Pacific Islander	13,745	15,336	18,794	25,395
American Indian/Alaskan Native	3,319	3,404	3,593	4,246
Nonresident alien	15,703	17,831	22,589	29,217
	Master's degrees			
Total	315,660	299,887	294,183	280,421
White, non-Hispanic	265,147	249,051	241,216	223,628
Black, non-Hispanic	21,024	19,393	17,133	13,939
Hispanic	6,069	5,544	6,461	6,864
Asian or Pacific Islander	5,115	5,495	6,282	7,782
American Indian/Alaskan Native	967	999	1,034	1,256
Nonresident alien	17,338	19,405	22,057	26,952

Table 2:5–1 Number of degrees conferred, by race and ethnicity and degree level: Selected academic years ending 1977–1985—Continued

Race and ethnicity	1977	1979	1981	1985
	Doctor's degrees			
Total	33,111	32,664	32,839	32,307
White, non-Hispanic	26,836	26,128	25,908	23,934
Black, non-Hispanic	1,253	1,267	1,265	1,154
Hispanic	522	439	456	677
Asian or Pacific Islander	658	811	877	1,106
American Indian/Alaskan Native	95	104	130	119
Nonresident alien	3,747	3,915	4,203	5,317
	First-professional degrees *			
Total	63,953	68,611	71,340	71,057
White, non-Hispanic	58,422	62,430	64,551	63,219
Black, non-Hispanic	2,537	2,836	2,931	3,029
Hispanic	1,076	1,283	1,541	1,884
Asian or Pacific Islander	1,021	1,205	1,456	1,816
American Indian/Alaskan Native	196	216	192	248
Nonresident alien	701	641	669	861

* The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

NOTE: Data for academic year ending 1983 were not fully edited and thus are not available for publication. The total number of degrees reported in this table is lower than the total actually conferred because of missing racial/ethnic data. The numbers reported for 1977 and 1979 do not include degrees conferred by U.S. Service Schools (0.4 percent or less of total degrees).

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred).

Table 2:5–2 Percent change in number of degrees conferred between academic years ending 1977 and 1985, by race and ethnicity, degree level, and gender

Race and ethnicity	Total	Men	Women	Total	Men	Women
	Bachelor's degrees			Master's degrees		
Total[1]	6.5	-2.6	17.2	-9.7	-14.5	-4.4
White, non-Hispanic	2.6	-7.0	13.9	-15.7	-23.3	-7.3
Black, non-Hispanic	-1.8	-8.0	2.9	-33.7	-33.1	-34.1
Hispanic	38.6	21.1	59.9	13.1	-6.3	35.7
Asian or Pacific Islander	84.8	78.6	92.4	52.1	55.4	47.1
American Indian/Alaskan Native	27.9	11.2	47.7	29.9	11.9	50.9
	Doctor's degrees			First-professional degrees[2]		
Total[1]	-0.9	-13.7	39.0	16.6	-3.7	105.3
White, non-Hispanic	-10.8	-25.0	30.8	8.2	-10.8	93.4
Black, non-Hispanic	-7.9	-26.8	21.8	19.4	-7.8	81.2
Hispanic	29.7	12.5	77.0	75.1	38.7	252.5
Asian or Pacific Islander	68.1	48.5	157.6	77.9	48.5	171.0
American Indian/Alaskan Native	25.3	-4.5	96.4	26.5	10.7	94.6

[1] Includes degrees conferred to nonresident aliens and to those of unknown race/ethnicity.

[2] See table 2:5–1 for definition.

NOTE: Data for 1977 exclude degrees conferred by U.S. Service Schools (0.4 percent or less of degrees conferred).

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred).

Table 2:5–3 Number of degrees conferred, by race and ethnicity, degree level, and gender: Academic years ending 1977 and 1985

Race and ethnicity and degree level	Men		Women	
	1977	1985	1977	1985
Bachelor's degrees				
White, non-Hispanic	435,659	405,085	369,527	421,021
Black, non-Hispanic	25,026	23,018	33,489	34,455
Hispanic	10,238	12,402	8,425	13,472
Asian or Pacific Islander	7,590	13,554	6,155	11,841
American Indian/Alaskan Native	1,797	1,998	1,522	2,248
Master's degrees				
White, non-Hispanic	138,303	106,059	126,844	117,569
Black, non-Hispanic	7,769	5,200	13,255	8,739
Hispanic	3,266	3,059	2,803	3,805
Asian or Pacific Islander	3,116	4,842	1,999	2,940
American Indian/Alaskan Native	521	583	446	673
Doctor's degrees				
White, non-Hispanic	20,017	15,017	6,819	8,917
Black, non-Hispanic	766	561	487	593
Hispanic	383	431	139	246
Asian or Pacific Islander	540	802	118	304
American Indian/Alaskan Native	67	64	28	55
First-professional degrees *				
White, non-Hispanic	47,777	42,630	10,645	20,589
Black, non-Hispanic	1,761	1,623	776	1,406
Hispanic	893	1,239	183	645
Asian or Pacific Islander	776	1,152	245	664
American Indian/Alaskan Native	159	176	37	72

* See table 2:5–1 for definition.

NOTE: Data for nonresident aliens are not shown. Data for 1977 exclude degrees conferred by U.S. Service Schools (0.4 percent or less of degrees conferred).

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred).

Table 2:6–1 Percentage distribution of bachelor's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985
		White, non-Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	33.7	31.2	29.5	27.1
Humanities	16.2	15.0	14.7	13.7
Social and behavioral sciences	17.5	16.1	14.9	13.4
Natural and computer sciences and engineering	15.8	16.6	17.5	20.9
Natural sciences	10.0	9.2	8.4	7.8
Life sciences	5.9	5.3	4.6	3.9
Physical sciences	2.5	2.6	2.6	2.5
Mathematics	1.6	1.3	1.2	1.5
Computer sciences and engineering	5.8	7.4	9.1	13.0
Computer and information sciences	0.7	0.9	1.6	3.8
Engineering	5.1	6.5	7.5	9.3
Technical/professional *	50.5	52.3	52.9	52.0
Education	15.5	13.6	11.6	9.4
Business and other technical/professional *	34.9	38.6	41.3	42.6
Business and management	16.5	18.9	21.6	23.8
Other technical/professional *	18.5	19.8	19.8	18.8
		Black, non-Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	34.4	32.0	29.7	26.6
Humanities	11.2	11.7	10.9	11.3
Social and behavioral sciences	23.1	20.3	18.9	15.3
Natural and computer sciences and engineering	9.4	10.1	11.5	15.6
Natural sciences	6.5	6.4	6.2	6.3
Life sciences	4.1	4.1	3.7	3.6
Physical sciences	1.1	1.1	1.5	1.4
Mathematics	1.2	1.1	1.0	1.3
Computer sciences and engineering	3.0	3.8	5.3	9.2
Computer and information sciences	0.6	0.8	1.3	3.7
Engineering	2.3	2.9	4.0	5.5
Technical/professional *	56.2	57.8	58.7	57.9
Education	22.1	19.1	15.6	9.5
Business and other technical/professional *	34.1	38.7	43.1	48.4
Business and management	17.0	19.0	22.1	26.1
Other technical/professional *	17.1	19.7	21.0	22.3

Table 2:6–1 Percentage distribution of bachelor's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	41.6	37.9	35.5	31.1
Humanities	19.0	17.3	16.3	15.0
Social and behavioral sciences	22.6	20.6	19.2	16.1
Natural and computer sciences and engineering	13.5	14.5	15.9	19.3
Natural sciences	8.2	8.2	7.9	7.4
Life sciences	5.3	5.5	5.2	4.8
Physical sciences	1.8	1.7	1.9	1.6
Mathematics	1.2	1.0	0.8	1.0
Computer sciences and engineering	5.3	6.4	7.9	11.9
Computer and information sciences	0.5	0.8	1.4	3.2
Engineering	4.8	5.6	6.6	8.7
Technical/professional *	44.9	47.5	48.6	49.6
Education	16.3	15.1	13.0	9.8
Business and other technical/professional *	28.6	32.4	35.6	39.8
Business and management	13.9	16.0	18.8	22.3
Other technical/professional *	14.7	16.5	16.7	17.5
		American Indian/Alaskan Native		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	34.4	33.6	33.7	29.7
Humanities	15.2	13.8	15.1	14.4
Social and behavioral sciences	19.3	19.8	18.6	15.3
Natural and computer sciences and engineering	12.0	12.5	12.1	18.1
Natural sciences	7.5	7.4	6.1	7.5
Life sciences	4.7	4.3	3.8	3.8
Physical sciences	2.0	1.9	1.8	2.3
Mathematics	0.8	1.2	0.5	1.4
Computer sciences and engineering	4.5	5.1	6.0	10.6
Computer and information sciences	0.5	0.3	0.6	3.3
Engineering	4.0	4.8	5.4	7.4
Technical/professional *	53.5	53.9	54.2	52.2
Education	21.3	18.9	15.8	11.4
Business and other technical/professional *	32.2	35.0	38.3	40.8
Business and management	13.0	14.8	17.7	21.7
Other technical/professional *	19.2	20.1	20.6	19.1

Table 2:6–1 Percentage distribution of bachelor's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Asian or Pacific Islander		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	32.3	28.7	25.6	22.1
Humanities	14.5	13.2	12.4	10.8
Social and behavioral sciences	17.8	15.4	13.2	11.3
Natural and computer sciences and engineering	24.4	28.1	33.0	41.9
Natural sciences	14.5	14.4	13.2	14.1
Life sciences	9.6	9.5	7.9	7.7
Physical sciences	2.7	2.8	3.2	3.0
Mathematics	2.3	2.1	2.1	3.5
Computer sciences and engineering	9.9	13.7	19.9	27.8
Computer and information sciences	1.2	1.7	3.6	8.0
Engineering	8.7	12.0	16.3	19.7
Technical/professional *	43.3	43.3	41.4	35.9
Education	6.5	5.1	3.8	3.0
Business and other technical/professional *	36.7	38.1	37.5	32.9
Business and management	18.9	20.4	21.0	20.8
Other technical/professional *	17.9	17.7	16.5	12.1
		Nonresident alien		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	24.6	23.6	20.4	18.6
Humanities	11.5	11.4	9.5	9.1
Social and behavioral sciences	13.1	12.2	10.9	9.6
Natural and computer sciences and engineering	36.6	39.7	43.5	41.0
Natural sciences	12.2	10.9	9.2	8.4
Life sciences	6.5	5.0	4.0	3.1
Physical sciences	3.6	3.9	3.2	2.7
Mathematics	2.0	2.0	2.0	2.6
Computer sciences and engineering	24.4	28.8	34.3	32.6
Computer and information sciences	1.7	2.1	3.4	7.2
Engineering	22.7	26.7	30.8	25.3
Technical/professional *	38.8	36.7	36.1	40.4
Education	4.7	4.9	4.0	3.5
Business and other technical/professional *	34.1	31.8	32.1	36.9
Business and management	21.1	19.6	20.2	25.4
Other technical/professional *	13.0	12.2	11.8	11.5

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Distributions for 1977 through 1981 exclude degrees not reported by race and ethnicity. Distributions for 1985 include degrees for which missing race and ethnicity could be imputed. The number of degrees reported for 1977 and 1979 excludes degrees conferred by U.S. Service Schools (0.4 percent or less of degrees). Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, Office for Civil Rights, Survey of Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, academic years ending 1977 and 1979; National Center for Education Statistics, Degrees and Other Formal Awards Conferred surveys, academic years ending 1981 and 1985.

Table 2:6–2 Percentage distribution of master's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985
		White, non-Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	17.6	17.0	16.7	15.9
Humanities	10.2	10.1	10.0	9.4
Social and behavioral sciences	7.4	6.9	6.7	6.5
Natural and computer sciences and engineering	10.1	10.0	10.0	12.1
Natural sciences	5.1	5.1	4.6	4.5
Life sciences	2.3	2.4	2.2	1.8
Physical sciences	1.6	1.8	1.7	1.9
Mathematics	1.1	0.9	0.8	0.8
Computer sciences and engineering	5.0	4.9	5.4	7.6
Computer and information sciences	0.8	0.9	1.2	1.9
Engineering	4.2	4.0	4.2	5.6
Technical/professional *	72.3	73.1	73.3	72.0
Education	40.4	37.7	34.3	28.3
Business and other technical/professional *	31.9	35.3	39.0	43.7
Business and management	14.8	16.7	19.7	24.4
Other technical/professional *	17.2	18.6	19.3	19.2
		Black, non-Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	12.1	10.9	11.1	11.0
Humanities	5.0	4.6	5.0	4.9
Social and behavioral sciences	7.0	6.3	6.1	6.1
Natural and computer sciences and engineering	3.5	3.5	3.9	6.0
Natural sciences	2.1	1.9	2.0	2.1
Life sciences	1.0	1.1	1.0	1.1
Physical sciences	0.4	0.4	0.6	0.6
Mathematics	0.6	0.4	0.4	0.4
Computer sciences and engineering	1.4	1.6	1.9	3.9
Computer and information sciences	0.3	0.3	0.4	1.3
Engineering	1.1	1.2	1.5	2.6
Technical/professional *	84.4	85.5	84.9	83.0
Education	60.4	55.8	50.5	41.7
Business and other technical/professional *	24.1	29.7	34.5	41.3
Business and management	7.7	11.0	13.8	18.7
Other technical/professional *	16.3	18.7	20.7	22.7

Table 2:6–2 Percentage distribution of master's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	22.5	18.4	16.5	17.4
Humanities	11.8	10.7	9.4	9.5
Social and behavioral sciences	10.7	7.7	7.1	7.9
Natural and computer sciences and engineering	7.6	6.6	7.8	10.2
Natural sciences	2.8	2.6	2.5	3.9
Life sciences	1.2	1.2	1.1	1.6
Physical sciences	0.9	0.9	0.9	1.6
Mathematics	0.7	0.5	0.6	0.7
Computer sciences and engineering	4.8	4.0	5.2	6.3
Computer and information sciences	0.8	0.4	0.9	1.4
Engineering	4.0	3.5	4.3	5.0
Technical/professional *	69.9	75.0	75.7	72.4
Education	43.9	46.1	43.8	36.7
Business and other technical/professional *	25.9	28.9	31.9	35.7
Business and management	9.4	11.0	13.4	17.1
Other technical/professional *	16.5	17.9	18.4	18.6
		American Indian/Alaskan Native		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	13.7	14.5	15.0	14.2
Humanities	7.2	8.0	7.6	7.8
Social and behavioral sciences	6.4	6.5	7.4	6.4
Natural and computer sciences and engineering	7.7	9.3	7.4	10.8
Natural sciences	5.0	5.3	3.2	3.7
Life sciences	1.6	1.6	1.5	1.4
Physical sciences	2.2	2.9	1.1	1.7
Mathematics	1.2	0.8	0.7	0.6
Computer sciences and engineering	2.7	4.0	4.2	7.2
Computer and information sciences	0.3	1.6	1.2	3.3
Engineering	2.4	2.4	3.0	3.9
Technical/professional *	78.7	76.2	77.7	75.0
Education	50.1	45.1	43.8	37.3
Business and other technical/professional *	28.6	31.0	33.8	37.7
Business and management	11.0	13.5	15.0	21.6
Other technical/professional *	17.7	17.5	18.9	16.2

Table 2:6–2 Percentage distribution of master's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
	Asian or Pacific Islander			
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	17.2	13.4	12.0	12.9
Humanities	10.0	7.5	7.1	7.1
Social and behavioral sciences	7.2	5.8	4.9	5.9
Natural and computer sciences and engineering	24.1	26.7	27.9	35.3
Natural sciences	7.7	8.5	6.3	7.1
Life sciences	3.1	3.7	2.3	2.3
Physical sciences	2.8	2.9	2.4	2.7
Mathematics	1.8	1.9	1.5	2.1
Computer sciences and engineering	16.4	18.2	21.6	28.1
Computer and information sciences	2.1	2.7	4.4	7.9
Engineering	14.3	15.5	17.2	20.2
Technical/professional *	58.7	59.9	60.1	51.8
Education	19.4	17.2	15.5	10.3
Business and other technical/professional *	39.3	42.7	44.6	41.5
Business and management	18.3	22.6	26.0	26.6
Other technical/professional *	21.0	20.2	18.6	14.9
	Nonresident alien			
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	17.7	15.9	16.9	16.2
Humanities	8.2	7.3	8.5	8.3
Social and behavioral sciences	9.5	8.5	8.5	7.9
Natural and computer sciences and engineering	31.2	31.2	32.1	36.3
Natural sciences	8.7	8.5	7.3	8.4
Life sciences	2.8	2.4	1.7	1.8
Physical sciences	3.8	3.6	3.6	4.1
Mathematics	2.1	2.4	2.1	2.5
Computer sciences and engineering	22.5	22.8	24.8	27.9
Computer and information sciences	2.1	2.4	4.1	6.3
Engineering	20.4	20.4	20.7	21.6
Technical/professional *	51.1	52.9	50.9	47.5
Education	13.8	14.1	12.2	10.8
Business and other technical/professional	37.3	38.7	38.7	36.7
Business and management	21.8	22.6	22.9	21.6
Other technical/professional *	15.5	16.1	15.8	15.1

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Distributions for 1977 through 1981 exclude degrees not reported by race and ethnicity. Distributions for 1985 include degrees for which missing race and ethnicity could be imputed. The number of degrees reported for 1977 and 1979 excludes degrees conferred by U.S. Service Schools (0.4 percent or less of degrees). Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, Office for Civil Rights, Survey of Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, academic years ending 1977 and 1979; National Center for Education Statistics, Degrees and Other Formal Awards Conferred surveys, academic years ending 1981 and 1985.

Indicator 2:6

Table 2:6–3 Percentage distribution of doctor's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985
		White, non-Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	37.4	36.9	34.9	33.7
Humanities	16.7	17.5	15.2	14.8
Social and behavioral sciences	20.7	19.4	19.7	18.9
Natural and computer sciences and engineering	29.1	28.7	29.6	29.5
Natural sciences	22.7	22.7	23.7	23.1
Life sciences	10.6	11.4	12.3	11.4
Physical sciences	9.8	9.2	9.4	10.2
Mathematics	2.3	2.0	2.0	1.6
Computer sciences and engineering	6.4	6.0	5.9	6.4
Computer and information sciences	0.6	0.7	0.7	0.6
Engineering	5.8	5.3	5.2	5.8
Technical/professional *	33.5	34.4	35.5	36.8
Education	24.7	24.2	24.7	23.5
Business and other technical/professional *	8.9	10.2	10.8	13.4
Business and management	2.5	2.5	2.4	2.5
Other technical/professional *	6.4	7.7	8.4	10.9
		Black, non-Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	28.5	31.2	28.5	29.6
Humanities	10.8	12.0	11.5	10.1
Social and behavioral sciences	17.7	19.2	17.1	19.5
Natural and computer sciences and engineering	10.5	10.7	10.3	12.0
Natural sciences	8.5	8.5	8.3	8.2
Life sciences	4.2	3.7	5.1	4.6
Physical sciences	3.6	3.8	2.5	3.0
Mathematics	0.8	1.0	0.7	0.6
Computer sciences and engineering	1.9	2.2	2.0	3.7
Computer and information sciences	0.1	0.3	0.1	0.3
Engineering	1.8	1.9	1.9	3.5
Technical/professional *	61.1	58.1	61.2	58.4
Education	54.7	49.3	48.5	45.1
Business and other technical/professional *	6.4	8.8	12.6	13.3
Business and management	1.0	1.4	2.5	1.2
Other technical/professional *	5.3	7.3	10.1	12.0

Table 2:6–3 Percentage distribution of doctor's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Hispanic		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	39.3	44.4	40.6	34.1
Humanities	16.9	21.0	14.9	14.8
Social and behavioral sciences	22.4	23.5	25.7	19.4
Natural and computer sciences and engineering	21.3	18.2	20.2	32.9
Natural sciences	16.5	13.0	15.1	19.5
Life sciences	5.6	6.4	8.8	9.9
Physical sciences	7.5	5.2	5.0	6.4
Mathematics	3.4	1.4	1.3	3.2
Computer sciences and engineering	4.8	5.2	5.0	13.4
Computer and information sciences	0.0	0.2	0.0	0.3
Engineering	4.8	5.0	5.0	13.1
Technical/professional *	39.5	37.4	39.3	32.9
Education	31.4	31.0	30.7	24.1
Business and other technical/professional *	8.0	6.4	8.6	8.9
Business and management	1.3	1.1	0.4	0.6
Other technical/professional *	6.7	5.2	8.1	8.3
		American Indian/Alaskan Native		
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	28.4	35.6	27.7	22.7
Humanities	11.6	9.6	10.8	10.1
Social and behavioral sciences	16.8	26.0	16.9	12.6
Natural and computer sciences and engineering	28.4	15.4	15.4	20.2
Natural sciences	25.3	13.5	10.8	13.4
Life sciences	15.8	5.8	6.2	3.4
Physical sciences	6.3	7.7	3.1	10.1
Mathematics	3.2	0.0	1.5	0.0
Computer sciences and engineering	3.2	1.9	4.6	6.7
Computer and information sciences	1.1	0.0	0.8	0.8
Engineering	2.1	1.9	3.8	5.9
Technical/professional *	43.2	49.0	56.9	57.1
Education	33.7	41.3	43.8	42.9
Business and other technical/professional *	9.5	7.7	13.1	14.3
Business and management	3.2	2.9	3.8	3.4
Other technical/professional *	6.3	4.8	9.2	10.9

Table 2:6–3 Percentage distribution of doctor's degrees, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
	Asian or Pacific Islander			
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	22.2	20.3	21.0	20.8
Humanities	7.3	9.5	9.0	10.1
Social and behavioral sciences	14.9	10.9	12.0	10.7
Natural and computer sciences and engineering	53.8	57.7	55.0	56.1
Natural sciences	33.6	34.2	31.6	31.1
Life sciences	15.8	15.7	16.0	11.7
Physical sciences	14.3	14.9	12.1	16.2
Mathematics	3.5	3.6	3.5	3.3
Computer sciences and engineering	20.2	23.6	23.4	25.0
Computer and information sciences	1.4	1.0	1.6	1.3
Engineering	18.8	22.6	21.8	23.8
Technical/professional *	24.0	21.9	24.1	23.1
Education	11.7	12.0	12.0	7.6
Business and other technical/professional *	12.3	10.0	12.1	15.5
Business and management	2.4	1.5	2.9	3.2
Other technical/professional *	9.9	8.5	9.2	12.3
	Nonresident alien			
Total percent	100.0	100.0	100.0	100.0
Humanities and social/behavioral sciences	22.9	22.6	21.3	20.8
Humanities	8.7	9.8	9.1	7.8
Social and behavioral sciences	14.2	12.8	12.2	13.0
Natural and computer sciences and engineering	51.4	48.7	47.6	52.2
Natural sciences	27.6	25.3	23.6	24.6
Life sciences	9.1	8.8	6.9	7.1
Physical sciences	14.2	12.4	12.6	12.8
Mathematics	4.3	4.1	4.1	4.7
Computer sciences and engineering	23.8	23.4	24.0	27.6
Computer and information sciences	1.2	1.2	1.2	1.3
Engineering	22.6	22.1	22.7	26.3
Technical/professional *	25.7	28.7	31.1	27.0
Education	10.2	12.7	14.1	11.2
Business and other technical/professional *	15.6	16.0	17.0	15.8
Business and management	4.3	4.2	3.8	3.8
Other technical/professional *	11.3	11.8	13.2	12.0

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Distributions for 1977 through 1981 exclude degrees not reported by race and ethnicity. Distributions for 1985 include degrees for which missing race and ethnicity could be imputed. The number of degrees reported for 1977 and 1979 excludes degrees conferred by U.S. Service Schools (0.4 percent or less of degrees). Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Education, Office for Civil Rights, Survey of Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, academic years ending 1977 and 1979; National Center for Education Statistics, Degrees and Other Formal Awards Conferred surveys, academic years ending 1981 and 1985.

Table 2:6–4 Number of bachelor's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985
		White, non-Hispanic		
Total degrees	805,186	799,617	807,319	826,106
Humanities and social/behavioral sciences	271,490	249,100	238,522	224,152
Humanities	130,327	120,305	118,286	113,084
Social and behavioral sciences	141,163	128,795	120,236	111,068
Natural and computer sciences and engineering	127,177	132,701	141,380	172,388
Natural sciences	80,313	73,523	67,967	64,629
Life sciences	47,623	42,705	37,276	31,807
Physical sciences	20,189	20,650	21,246	20,660
Mathematics	12,501	10,168	9,445	12,162
Computer sciences and engineering	46,864	59,178	73,413	107,759
Computer and information sciences	5,473	7,384	12,565	31,321
Engineering	41,391	51,794	60,848	76,438
Technical/professional *	406,519	417,816	427,417	429,566
Education	125,148	108,949	93,724	77,531
Business and other technical/professional *	281,371	308,867	333,693	352,035
Business and management	132,814	150,759	174,198	196,915
Other technical/professional *	148,557	158,108	159,495	155,120
		Black, non-Hispanic		
Total degrees	58,515	60,130	60,673	57,473
Humanities and social/behavioral sciences	20,107	19,266	18,045	15,272
Humanities	6,567	7,014	6,608	6,505
Social and behavioral sciences	13,540	12,252	11,437	8,767
Natural and computer sciences and engineering	5,514	6,091	6,994	8,942
Natural sciences	3,785	3,830	3,759	3,640
Life sciences	2,413	2,487	2,269	2,045
Physical sciences	665	691	906	829
Mathematics	707	652	581	766
Computer sciences and engineering	1,729	2,261	3,235	5,302
Computer and information sciences	361	505	786	2,143
Engineering	1,368	1,756	2,449	3,159
Technical/professional *	32,894	34,773	35,634	33,259
Education	12,992	11,509	9,494	5,456
Business and other technical/professional *	19,972	23,264	26,140	27,803
Business and management	9,976	11,430	13,400	14,999
Other technical/professional *	9,996	11,834	12,740	12,804

Table 2:6–4 Number of bachelor's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Hispanic		
Total degrees	18,663	20,029	21,832	25,874
Humanities and social/behavioral sciences	7,764	7,594	7,754	8,049
Humanities	3,537	3,469	3,561	3,872
Social and behavioral sciences	4,227	4,125	4,193	4,177
Natural and computer sciences and engineering	2,514	2,914	3,469	4,983
Natural sciences	1,534	1,642	1,734	1,915
Life sciences	981	1,109	1,144	1,241
Physical sciences	332	339	405	417
Mathematics	221	194	185	257
Computer sciences and engineering	980	1,272	1,735	3,068
Computer and information sciences	93	155	302	826
Engineering	887	1,117	1,433	2,242
Technical/professional *	8,385	9,521	10,609	12,842
Education	3,050	3,029	2,847	2,533
Business and other technical/professional *	5,335	6,492	7,762	10,309
Business and management	2,588	3,196	4,114	5,771
Other technical/professional *	2,747	3,296	3,648	4,538
		American Indian/Alaskan Native		
Total degrees	3,319	3,404	3,593	4,246
Humanities and social/behavioral sciences	1,143	1,144	1,211	1,260
Humanities	504	470	541	612
Social and behavioral sciences	639	674	670	648
Natural and computer sciences and engineering	399	425	436	770
Natural sciences	250	252	220	318
Life sciences	157	148	137	161
Physical sciences	67	63	65	98
Mathematics	26	41	18	59
Computer sciences and engineering	149	173	216	452
Computer and information sciences	15	11	21	139
Engineering	134	162	195	313
Technical/professional *	1,777	1,835	1,946	2,216
Education	707	645	569	483
Business and other technical/professional *	1,070	1,190	1,377	1,733
Business and management	433	505	636	921
Other technical/professional *	637	685	741	812

Table 2:6–4 Number of bachelor's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
	Asian or Pacific Islander			
Total degrees	13,745	15,336	18,794	25,395
Humanities and social/behavioral sciences	4,442	4,400	4,807	5,618
Humanities	1,993	2,032	2,323	2,754
Social and behavioral sciences	2,449	2,368	2,484	2,864
Natural and computer sciences and engineering	3,358	4,303	6,211	10,650
Natural sciences	1,996	2,204	2,476	3,593
Life sciences	1,314	1,458	1,489	1,950
Physical sciences	367	425	596	763
Mathematics	315	321	391	880
Computer sciences and engineering	1,362	2,099	3,735	7,057
Computer and information sciences	163	262	669	2,044
Engineering	1,199	1,837	3,066	5,013
Technical/professional *	5,945	6,633	7,776	9,127
Education	894	785	723	770
Business and other technical/professional *	5,051	5,848	7,053	8,357
Business and management	2,596	3,135	3,943	5,274
Other technical/professional *	2,455	2,713	3,110	3,083
	Nonresident alien			
Total degrees	15,703	17,831	22,589	29,217
Humanities and social/behavioral sciences	3,865	4,208	4,612	5,443
Humanities	1,812	2,027	2,152	2,649
Social and behavioral sciences	2,053	2,181	2,460	2,794
Natural and computer sciences and engineering	5,745	7,080	9,828	11,971
Natural sciences	1,911	1,944	2,088	2,460
Life sciences	1,028	887	901	911
Physical sciences	567	693	732	788
Mathematics	316	364	455	761
Computer sciences and engineering	3,834	5,136	7,740	9,511
Computer and information sciences	265	376	777	2,116
Engineering	3,569	4,760	6,963	7,395
Technical/professional *	6,093	6,543	8,149	11,803
Education	741	869	908	1,015
Business and other technical/professional *	5,352	5,674	7,241	10,788
Business and management	3,316	3,499	4,566	7,428
Other technical/professional *	2,036	2,175	2,675	3,360

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Distributions for 1977 through 1981 exclude degrees not reported by race and ethnicity. Distributions for 1985 include degrees for which missing race and ethnicity could be imputed. The number of degrees reported for 1977 and 1979 excludes degrees conferred by U.S. Service Schools (0.4 percent or less of degrees).,

SOURCE: U.S. Department of Education, Office for Civil Rights, Survey of Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, academic years ending 1977 and 1979; National Center for Education Statistics, Degrees and Other Formal Awards Conferred surveys, academic years ending 1981 and 1985.

Table 2:6-5 Number of master's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985
		White, non-Hispanic		
Total degrees	265,147	249,051	241,216	223,628
Humanities and social/behavioral sciences	46,562	42,278	40,262	35,664
Humanities	27,004	25,087	24,096	21,113
Social and behavioral sciences	19,558	17,191	16,166	14,551
Natural and computer sciences and engineering	26,769	24,823	24,180	27,000
Natural sciences	13,544	12,586	11,215	10,097
Life sciences	6,181	5,861	5,210	4,079
Physical sciences	4,315	4,373	4,115	4,145
Mathematics	3,048	2,352	1,890	1,873
Computer sciences and engineering	13,225	12,237	12,965	16,903
Computer and information sciences	2,136	2,261	2,818	4,303
Engineering	11,089	9,976	10,147	12,600
Technical/professional *	191,816	181,950	176,774	160,964
Education	107,127	93,968	82,779	63,302
Business and other technical/professional *	84,689	87,982	93,995	97,662
Business and management	39,140	41,539	47,474	54,663
Other technical/professional *	45,549	46,443	46,521	42,999
		Black, non-Hispanic		
Total degrees	21,024	19,393	17,133	13,939
Humanities and social/behavioral sciences	2,535	2,123	1,904	1,534
Humanities	1,060	899	865	686
Social and behavioral sciences	1,475	1,224	1,039	848
Natural and computer sciences and engineering	735	680	675	833
Natural sciences	432	374	345	293
Life sciences	206	217	171	151
Physical sciences	93	86	107	89
Mathematics	133	71	67	53
Computer sciences and engineering	303	306	330	540
Computer and information sciences	66	65	70	180
Engineering	237	241	260	360
Technical/professional *	17,754	16,590	14,554	11,572
Education	12,696	10,825	8,645	5,812
Business and other technical/professional *	5,058	5,765	5,909	5,760
Business and management	1,621	2,129	2,359	2,601
Other technical/professional *	3,437	3,636	3,550	3,159

Table 2:6-5 Number of master's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977-1985—Continued

Field of study	1977	1979	1981	1985
	Hispanic			
Total degrees	6,069	5,544	6,461	6,864
Humanities and social/behavioral sciences	1,366	1,021	1,067	1,196
Humanities	717	594	608	651
Social and behavioral sciences	649	427	459	545
Natural and computer sciences and engineering	462	366	502	699
Natural sciences	171	146	164	265
Life sciences	74	68	69	109
Physical sciences	55	52	55	107
Mathematics	42	26	40	49
Computer sciences and engineering	291	220	338	434
Computer and information sciences	46	24	60	94
Engineering	245	196	278	340
Technical/professional *	4,241	4,157	4,892	4,969
Education	2,667	2,555	2,831	2,519
Business and other technical/professional *	1,574	1,602	2,061	2,450
Business and management	572	612	869	1,175
Other technical/professional *	1,002	990	1,192	1,275
	American Indian/Alaskan Native			
Total degrees	967	999	1,034	1,256
Humanities and social/behavioral sciences	132	145	155	178
Humanities	70	80	79	98
Social and behavioral sciences	62	65	76	80
Natural and computer sciences and engineering	74	93	76	136
Natural sciences	48	53	33	46
Life sciences	15	16	15	18
Physical sciences	21	29	11	21
Mathematics	12	8	7	7
Computer sciences and engineering	26	40	43	90
Computer and information sciences	3	16	12	41
Engineering	23	24	31	49
Technical/professional *	761	761	803	942
Education	484	451	453	468
Business and other technical/professional *	277	310	350	474
Business and management	106	135	155	271
Other technical/professional *	171	175	195	203

Table 2:6–5 Number of master's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
	Asian or Pacific Islander			
Total degrees	5,115	5,495	6,282	7,782
Humanities and social/behavioral sciences	880	735	755	1,006
Humanities	512	414	445	549
Social and behavioral sciences	368	321	310	457
Natural and computer sciences and engineering	1,234	1,468	1,753	2,744
Natural sciences	393	469	395	556
Life sciences	161	205	145	179
Physical sciences	142	160	153	213
Mathematics	90	104	97	164
Computer sciences and engineering	841	999	1,358	2,188
Computer and information sciences	107	149	279	615
Engineering	734	850	1,079	1,573
Technical/professional *	3,001	3,292	3,774	4,032
Education	990	944	973	801
Business and other technical/professional *	2,011	2,348	2,801	3,231
Business and management	937	1,240	1,633	2,070
Other technical/professional *	1,074	1,108	1,168	1,161
	Nonresident alien			
Total degrees	17,338	19,405	22,057	26,952
Humanities and social/behavioral sciences	3,076	3,085	3,737	4,357
Humanities	1,429	1,426	1,872	2,236
Social and behavioral sciences	1,647	1,659	1,865	2,121
Natural and computer sciences and engineering	5,410	6,059	7,085	9,781
Natural sciences	1,503	1,642	1,618	2,259
Life sciences	477	464	368	474
Physical sciences	656	706	786	1,100
Mathematics	370	472	464	685
Computer sciences and engineering	3,907	4,417	5,467	7,522
Computer and information sciences	366	465	904	1,709
Engineering	3,541	3,952	4,563	5,813
Technical/professional *	8,852	10,261	11,235	12,814
Education	2,391	2,744	2,699	2,919
Business and other technical/professional *	6,461	7,517	8,536	9,895
Business and management	3,781	4,388	5,051	5,816
Other technical/professional *	2,680	3,129	3,485	4,079

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Distributions for 1977 through 1981 exclude degrees not reported by race and ethnicity. Distributions for 1985 include degrees for which missing race and ethnicity could be imputed. The number of degrees reported for 1977 and 1979 excludes degrees conferred by U.S. Service Schools (0.4 percent or less of degrees).,

SOURCE: U.S. Department of Education, Office for Civil Rights, Survey of Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, academic years ending 1977 and 1979; National Center for Education Statistics, Degrees and Other Formal Awards Conferred surveys, academic years ending 1981 and 1985.

Table 2:6–6 Number of doctor's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985
	White, non-Hispanic			
Total degrees	26,836	26,128	25,908	23,934
Humanities and social/behavioral sciences	10,042	9,633	9,050	8,067
Humanities	4,481	4,575	3,948	3,554
Social and behavioral sciences	5,561	5,058	5,102	4,513
Natural and computer sciences and engineering	7,800	7,494	7,665	7,055
Natural sciences	6,087	5,926	6,129	5,528
Life sciences	2,855	2,991	3,177	2,725
Physical sciences	2,623	2,415	2,445	2,431
Mathematics	609	520	507	372
Computer sciences and engineering	1,713	1,568	1,536	1,527
Computer and information sciences	160	175	184	150
Engineering	1,553	1,393	1,352	1,377
Technical/professional *	8,994	9,001	9,193	8,812
Education	6,616	6,333	6,391	5,615
Business and other technical/professional *	2,378	2,668	2,802	3,197
Business and management	668	662	619	589
Other technical/professional *	1,710	2,006	2,183	2,608
	Black, non-Hispanic			
Total degrees	1,253	1,267	1,265	1,154
Humanities and social/behavioral sciences	357	395	361	342
Humanities	135	152	145	117
Social and behavioral sciences	222	243	216	225
Natural and computer sciences and engineering	131	136	130	138
Natural sciences	107	108	105	95
Life sciences	52	47	64	53
Physical sciences	45	48	32	35
Mathematics	10	13	9	7
Computer sciences and engineering	24	28	25	43
Computer and information sciences	1	4	1	3
Engineering	23	24	24	40
Technical/professional *	765	736	774	674
Education	685	625	614	521
Business and other technical/professional *	80	111	160	153
Business and management	13	18	32	14
Other technical/professional *	67	93	128	139

Table 2:6–6 Number of doctor's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Hispanic		
Total degrees	522	439	456	677
Humanities and social/behavioral sciences	205	195	185	231
Humanities	88	92	68	100
Social and behavioral sciences	117	103	117	131
Natural and computer sciences and engineering	111	80	92	223
Natural sciences	86	57	69	132
Life sciences	29	28	40	67
Physical sciences	39	23	23	43
Mathematics	18	6	6	22
Computer sciences and engineering	25	23	23	91
Computer and information sciences	0	1	0	2
Engineering	25	22	23	89
Technical/professional *	206	164	179	223
Education	164	136	140	163
Business and other technical/professional *	42	28	39	60
Business and management	7	5	2	4
Other technical/professional *	35	23	37	56
		American Indian/Alaskan Native		
Total degrees	95	104	130	119
Humanities and social/behavioral sciences	27	37	36	27
Humanities	11	10	14	12
Social and behavioral sciences	16	27	22	15
Natural and computer sciences and engineering	27	16	20	24
Natural sciences	24	14	14	16
Life sciences	15	6	8	4
Physical sciences	6	8	4	12
Mathematics	3	0	2	0
Computer sciences and engineering	3	2	6	8
Computer and information sciences	1	0	1	1
Engineering	2	2	5	7
Technical/professional *	41	51	74	68
Education	32	43	57	51
Business and other technical/professional *	9	8	17	17
Business and management	3	3	5	4
Other technical/professional *	6	5	12	13

Table 2:6–6 Number of doctor's degrees conferred, by field and race and ethnicity: Selected academic years ending 1977–1985—Continued

Field of study	1977	1979	1981	1985
		Asian or Pacific Islander		
Total degrees	658	811	877	1,106
Humanities and social/behavioral sciences	146	165	184	230
Humanities	48	77	79	112
Social and behavioral sciences	98	88	105	118
Natural and computer sciences and engineering	354	468	482	621
Natural sciences	221	277	277	344
Life sciences	104	127	140	129
Physical sciences	94	121	106	179
Mathematics	23	29	31	36
Computer sciences and engineering	133	191	205	277
Computer and information sciences	9	8	14	14
Engineering	124	183	191	263
Technical/professional *	158	178	211	255
Education	77	97	105	84
Business and other technical/professional *	81	81	106	171
Business and management	16	12	25	35
Other technical/professional *	65	69	81	136
		Nonresident alien		
Total degrees	3,747	3,915	4,203	5,317
Humanities and social/behavioral sciences	857	885	895	1,105
Humanities	326	382	383	415
Social and behavioral sciences	531	503	512	690
Natural and computer sciences and engineering	1,926	1,907	2,000	2,775
Natural sciences	1,034	992	992	1,307
Life sciences	342	343	289	376
Physical sciences	532	487	530	682
Mathematics	160	162	173	249
Computer sciences and engineering	892	915	1,008	1,468
Computer and information sciences	45	48	52	70
Engineering	847	867	956	1,398
Technical/professional *	964	1,123	1,308	1,437
Education	381	497	593	598
Business and other technical/professional *	583	626	715	839
Business and management	161	163	161	203
Other technical/professional *	422	463	554	636

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

NOTE: Distributions for 1977 through 1981 exclude degrees not reported by race and ethnicity. Distributions for 1985 include degrees for which missing race and ethnicity could be imputed. The number of degrees reported for 1977 and 1979 excludes degrees conferred by U.S. Service Schools (0.4 percent or less of degrees).,

SOURCE: U.S. Department of Education, Office for Civil Rights, Survey of Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, academic years ending 1977 and 1979; National Center for Education Statistics, Degrees and Other Formal Awards Conferred surveys, academic years ending 1981 and 1985.

Table 2:7–1 Percent of degrees earned by women, by degree level: Academic years ending 1971–1986

Academic year ending	Associate degrees	Bachelor's degrees	Master's degrees	Doctor's degrees	First-professional degrees *
1971	42.8	43.4	40.1	14.3	6.3
1972	43.1	43.6	40.6	15.8	6.2
1973	44.5	43.8	41.3	17.8	7.1
1974	45.2	44.2	43.0	19.1	9.8
1975	47.0	45.3	44.8	21.3	12.4
1976	46.4	45.5	46.4	22.9	15.6
1977	48.1	46.1	47.1	24.3	18.6
1978	50.3	47.1	48.3	26.4	21.5
1979	52.3	48.2	49.1	28.1	23.5
1980	54.2	49.0	49.4	29.7	24.8
1981	54.7	49.8	50.3	31.1	26.6
1982	54.7	50.3	50.8	32.1	27.5
1983	54.6	50.6	50.1	33.2	29.8
1984	55.2	50.5	49.5	33.6	31.0
1985	55.4	50.7	49.9	34.1	32.8
1986	56.0	50.8	50.3	35.2	33.4

* The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:7–2 Number of degrees conferred, by degree level and gender: Academic years ending 1971–1986

Academic year ending	Associate degrees		Bachelor's degrees		Master's degrees	
	Men	Women	Men	Women	Men	Women
1971	144,395	108,215	475,594	364,136	138,146	92,363
1972	166,317	125,802	500,590	386,683	149,550	102,083
1973	175,413	140,761	518,191	404,171	154,468	108,903
1974	188,591	155,333	527,313	418,463	157,842	119,191
1975	191,017	169,154	504,841	418,092	161,570	130,880
1976	209,996	181,458	504,925	420,821	167,248	144,523
1977	210,842	195,535	495,545	424,004	167,783	149,381
1978	204,718	207,528	487,347	433,857	161,212	150,408
1979	192,091	210,611	477,344	444,046	153,370	147,709
1980	183,737	217,173	473,611	455,806	150,749	147,332
1981	188,638	227,739	469,883	465,257	147,043	148,696
1982	196,939	237,576	473,364	479,634	145,532	150,014
1983	207,141	249,300	479,140	490,370	144,697	145,224
1984	202,762	249,654	482,319	491,990	143,595	140,668
1985	202,932	251,780	482,528	496,949	143,390	142,861
1986	196,166	249,881	485,923	501,900	143,508	145,059

Table 2:7-2 Number of degrees conferred, by degree level and gender: Academic years ending 1971–1986—Continued

Academic year ending	Doctor's degrees		First-professional degrees *	
	Men	Women	Men	Women
1971	27,530	4,577	35,544	2,402
1972	28,090	5,273	40,723	2,688
1973	28,571	6,206	46,489	3,529
1974	27,365	6,451	48,530	5,286
1975	26,817	7,266	48,956	6,960
1976	26,267	7,797	52,892	9,757
1977	25,142	8,090	52,374	11,985
1978	23,658	8,473	52,270	14,311
1979	23,541	9,189	52,652	16,196
1980	22,943	9,672	52,716	17,415
1981	22,711	10,247	52,792	19,164
1982	22,224	10,483	52,223	19,809
1983	21,902	10,873	51,310	21,826
1984	22,064	11,145	51,334	23,073
1985	21,700	11,243	50,455	24,608
1986	21,819	11,834	49,261	24,649

* The National Center for Education Statistics recognizes 10 first-professional degree fields: chiropractic, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, theology, and veterinary medicine.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Indicator 2:8

Table 2:8–1 Percent of bachelor's degrees earned by women, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979	1981	1983	1985	1986
Total	43.4	43.8	45.3	46.1	48.2	49.8	50.6	50.7	50.8
Humanities and social/behavioral sciences	46.9	46.6	48.4	49.9	52.1	54.2	54.9	55.0	54.9
Humanities	58.4	57.0	56.8	56.2	57.4	58.4	58.4	58.7	58.5
Social and behavioral sciences	38.3	38.8	41.4	44.3	47.3	50.2	51.4	51.3	51.4
Natural and computer sciences and engineering	17.5	18.5	21.4	23.0	24.1	25.1	26.4	27.8	27.8
Natural sciences	27.8	29.0	31.4	33.0	35.5	37.9	39.9	41.4	41.9
Life sciences	29.1	29.8	33.1	36.2	40.2	44.1	46.1	47.8	48.1
Physical sciences	13.8	14.8	18.2	20.0	22.5	24.6	27.3	28.0	27.4
Mathematics	38.0	40.2	41.8	41.5	41.6	42.8	43.8	46.1	46.5
Computer sciences and engineering	1.4	2.3	3.8	6.7	10.7	14.0	17.5	20.0	20.0
Computer and information sciences	13.6	14.9	18.9	23.9	28.1	32.5	36.3	36.8	35.7
Engineering	0.8	1.2	2.2	4.5	8.3	10.3	12.3	13.2	13.1
Technical/professional *	49.6	49.9	50.7	50.9	53.6	55.7	57.3	58.2	58.4
Education	74.5	73.5	73.3	72.2	73.2	75.0	75.8	75.9	75.9
Business and other technical/professional *	26.7	30.0	36.9	41.3	46.6	50.3	52.9	54.4	54.7
Business and management	9.1	10.6	16.2	23.5	30.6	36.9	41.9	45.1	45.7
Other technical/professional *	52.8	53.7	56.3	57.2	61.9	64.8	66.2	66.3	66.5

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:8–2 Number of bachelor's degrees earned by women, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total	364,136	404,171	418,092	424,004	444,046
Humanities and social/behavioral sciences	157,856	166,274	163,829	154,875	150,289
Humanities	83,859	87,337	86,679	82,182	79,135
Social and behavioral sciences	73,997	78,937	77,150	72,693	71,154
Natural and computer sciences and engineering	23,519	26,191	30,477	33,530	37,405
Natural sciences	22,795	24,938	28,510	29,781	29,784
Life sciences	10,410	12,597	17,129	19,387	19,655
Physical sciences	2,953	3,070	3,786	4,501	5,222
Mathematics	9,432	9,271	7,595	5,893	4,907
Computer sciences and engineering	724	1,253	1,967	3,749	7,621
Computer and information sciences	324	640	953	1,531	2,447
Engineering	400	613	1,014	2,218	5,174
Technical/professional *	182,761	211,706	223,786	235,599	256,352
Education	131,520	142,788	122,458	103,781	92,290
Business and other technical/professional *	51,241	68,918	101,328	131,818	164,032
Business and management	10,461	13,366	21,599	35,438	52,537
Other technical/professional *	40,780	55,552	79,729	96,380	111,525

Field of study	1981	1983	1985	1986
Total	465,257	490,370	496,949	501,900
Humanities and social/behavioral sciences	149,037	147,407	144,952	146,396
Humanities	78,193	77,768	77,546	77,404
Social and behavioral sciences	70,844	69,639	67,406	68,992
Natural and computer sciences and engineering	42,309	50,123	58,951	59,621
Natural sciences	29,691	30,265	32,000	32,074
Life sciences	19,067	18,418	18,381	18,531
Physical sciences	5,888	6,389	6,637	5,962
Mathematics	4,736	5,458	6,982	7,581
Computer sciences and engineering	12,618	19,858	26,951	27,547
Computer and information sciences	4,919	8,904	14,299	14,966
Engineering	7,699	10,954	12,652	12,581
Technical/professional *	273,911	292,840	293,046	295,883
Education	81,233	74,321	66,897	66,235
Business and other technical/professional *	192,678	218,519	226,149	229,648
Business and management	73,543	95,175	105,319	108,889
Other technical/professional *	119,135	123,344	120,830	120,759

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:8–3 Percent of master's degrees earned by women, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total	40.1	41.3	44.8	47.1	49.1
Humanities and social/behavioral sciences	42.6	41.9	44.0	45.4	47.9
Humanities	51.4	50.5	51.8	51.0	52.0
Social and behavioral sciences	30.3	30.7	33.8	38.2	42.5
Natural and computer sciences and engineering	13.1	13.1	14.4	16.4	18.1
Natural sciences	24.8	24.2	25.3	28.4	30.1
Life sciences	33.6	30.5	30.0	33.7	37.6
Physical sciences	13.3	13.5	14.4	16.5	18.2
Mathematics	29.2	29.9	32.9	35.2	34.6
Computer sciences and engineering	1.9	2.7	4.0	6.2	8.2
Computer and information sciences	10.3	10.6	14.7	16.7	18.8
Engineering	1.1	1.7	2.4	4.4	6.1
Technical/professional *	45.7	47.1	50.1	52.3	54.1
Education	56.2	58.2	62.2	65.9	68.6
Business and other technical/professional *	29.2	29.9	32.5	35.1	38.8
Business and management	3.9	4.9	8.4	14.3	19.2
Other technical/professional *	51.8	50.6	51.3	52.9	56.5

Field of study	1981	1983	1985	1986
Total	50.3	50.1	49.9	50.3
Humanities and social/behavioral sciences	48.9	49.9	51.5	52.1
Humanities	51.0	51.4	52.7	53.1
Social and behavioral sciences	45.8	47.9	49.7	50.5
Natural and computer sciences and engineering	19.0	20.5	21.5	22.5
Natural sciences	31.0	33.2	34.7	35.1
Life sciences	38.9	43.6	47.7	47.8
Physical sciences	20.5	21.4	23.2	24.3
Mathematics	34.1	34.5	35.0	35.2
Computer sciences and engineering	11.1	13.4	15.2	16.5
Computer and information sciences	23.0	28.3	28.7	29.9
Engineering	8.2	9.3	10.7	11.5
Technical/professional *	55.7	55.7	55.6	56.0
Education	71.4	72.6	72.5	72.9
Business and other technical/professional *	42.0	43.7	45.1	45.4
Business and management	25.1	28.9	31.0	31.1
Other technical/professional *	59.5	61.4	62.7	62.9

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:8–4 Number of master's degrees earned by women, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979
Total	92,363	108,903	130,880	149,381	147,709
Humanities and social/behavioral sciences	21,424	22,221	24,445	24,834	23,582
Humanities	15,079	15,126	16,357	15,791	14,744
Social and behavioral sciences	6,345	7,095	8,088	9,043	8,838
Natural and computer sciences and engineering	4,636	4,758	4,936	5,762	6,133
Natural sciences	4,287	4,255	4,223	4,576	4,607
Life sciences	1,923	1,909	1,963	2,396	2,566
Physical sciences	846	843	838	881	990
Mathematics	1,518	1,503	1,422	1,299	1,051
Computer sciences and engineering	349	503	713	1,186	1,526
Computer and information sciences	164	225	338	466	575
Engineering	185	278	375	720	951
Technical/professional *	66,303	81,924	101,499	118,785	117,994
Education	49,975	61,437	74,748	83,537	76,852
Business and other technical/professional *	16,328	20,487	26,751	35,248	41,142
Business and management	1,038	1,526	3,062	6,654	9,671
Other technical/professional *	15,290	18,961	23,689	28,594	31,471

Field of study	1981	1983	1985	1986
Total	148,696	145,224	142,861	145,059
Humanities and social/behavioral sciences	23,389	23,105	23,653	23,936
Humanities	14,297	13,769	14,309	14,477
Social and behavioral sciences	9,092	9,336	9,344	9,459
Natural and computer sciences and engineering	6,616	7,899	9,109	9,846
Natural sciences	4,283	4,594	4,764	4,941
Life sciences	2,324	2,482	2,412	2,397
Physical sciences	1,084	1,133	1,344	1,432
Mathematics	875	979	1,008	1,112
Computer sciences and engineering	2,333	3,305	4,345	4,905
Computer and information sciences	971	1,508	2,037	2,412
Engineering	1,362	1,797	2,308	2,493
Technical/professional *	118,691	114,220	110,099	111,277
Education	70,682	61,621	55,192	55,634
Business and other technical/professional *	48,009	52,599	54,907	55,643
Business and management	14,504	18,862	20,903	20,849
Other technical/professional *	33,505	33,737	34,004	34,794

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:8–5 Percent of doctor's degrees earned by women, by field of study: Selected academic years ending 1971–1986

Field of study	1971	1973	1975	1977	1979	1981	1983	1985	1986
Total	14.3	17.8	21.3	24.3	28.1	31.1	33.2	34.1	35.2
Humanities and social/behavioral sciences	20.2	23.6	27.0	29.4	31.9	34.6	37.5	38.4	40.2
Humanities	23.9	27.8	30.1	31.3	31.6	34.1	35.2	35.6	36.9
Social and behavioral sciences	17.2	20.0	24.5	27.9	32.1	34.9	39.3	40.5	42.6
Natural and computer sciences and engineering	7.4	9.3	10.9	12.0	14.7	16.1	17.4	18.3	18.5
Natural sciences	10.1	12.4	14.5	15.3	18.7	20.3	22.6	23.7	24.1
Life sciences	16.3	19.5	22.0	21.4	25.6	28.3	32.2	32.8	33.6
Physical sciences	5.6	6.7	8.3	9.5	11.3	12.0	14.0	16.2	16.6
Mathematics	7.8	9.6	11.3	13.2	16.7	15.7	16.6	15.6	16.7
Computer sciences and engineering	0.7	1.9	2.4	3.3	4.1	4.6	5.1	6.7	7.3
Computer and information sciences	2.3	7.7	6.6	8.8	12.7	9.9	13.0	10.1	13.1
Engineering	0.6	1.5	2.1	2.8	3.3	4.1	4.4	6.4	6.7
Technical/professional *	17.6	21.5	25.9	30.5	36.2	41.2	43.2	45.3	46.9
Education	21.2	24.8	30.9	34.8	42.2	47.3	50.2	52.2	53.4
Business and other technical/professional *	9.7	14.3	15.0	19.6	23.2	28.6	30.8	34.4	36.7
Business and management	2.9	5.6	4.1	6.3	11.6	14.8	16.8	17.1	21.7
Other technical/professional *	12.4	17.6	19.6	24.6	26.9	32.5	34.1	38.5	40.8

* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Table 2:8-6 Number of doctor's degrees earned by women, by field of study: Selected academic years ending 1971-1986

Field of study	1971	1973	1975	1977	1979
Total	4,577	6,206	7,266	8,090	9,189
Humanities and social/behavioral sciences	1,977	2,762	3,228	3,448	3,618
Humanities	1,043	1,496	1,597	1,622	1,687
Social and behavioral sciences	934	1,266	1,631	1,826	1,931
Natural and computer sciences and engineering	960	1,149	1,234	1,246	1,491
Natural sciences	934	1,080	1,154	1,154	1,378
Life sciences	595	710	743	726	906
Physical sciences	246	268	301	319	350
Mathematics	93	102	110	109	122
Computer sciences and engineering	26	69	80	92	113
Computer and information sciences	3	15	14	19	30
Engineering	23	54	66	73	83
Technical/professional *	1,640	2,295	2,804	3,396	4,080
Education	1,358	1,814	2,299	2,774	3,264
Business and other technical/professional *	282	481	505	622	816
Business and management	23	52	41	54	100
Other technical/professional *	259	429	464	568	716

Field of study	1981	1983	1985	1986
Total	10,247	10,873	11,243	11,834
Humanities and social/behavioral sciences	3,740	3,980	3,919	4,259
Humanities	1,621	1,604	1,585	1,683
Social and behavioral sciences	2,119	2,376	2,334	2,576
Natural and computer sciences and engineering	1,671	1,808	2,019	2,115
Natural sciences	1,542	1,649	1,786	1,841
Life sciences	1,052	1,075	1,125	1,129
Physical sciences	376	458	552	588
Mathematics	114	116	109	124
Computer sciences and engineering	129	159	233	274
Computer and information sciences	25	34	25	45
Engineering	104	125	208	229
Technical/professional *	4,836	5,085	5,305	5,460
Education	3,736	3,787	3,732	3,795
Business and other technical/professional *	1,100	1,298	1,573	1,665
Business and management	125	136	148	210
Other technical/professional *	975	1,162	1,425	1,455

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* In contrast to previous editions of *The Condition of Education*, computer sciences and engineering are not included in the technical/professional category.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Degrees and Other Formal Awards Conferred, various years).

Indicator 2:9

Table 2:9–1 Number of degrees earned by foreign students, by field and degree level: Selected academic years ending 1977–1985

Field of study	1977	1979	1981	1985	Percent change 1977–1985
			Bachelor's degrees		
All fields	15,703	17,831	22,589	29,217	86.1
Humanities and social/behavioral sciences	3,865	4,208	4,612	5,443	40.8
Humanities	1,812	2,027	2,152	2,649	46.2
Social and behavioral sciences	2,053	2,181	2,460	2,794	36.1
Natural and computer sciences and engineering	5,745	7,080	9,828	11,971	108.4
Natural sciences	1,911	1,944	2,088	2,460	28.7
Life sciences	1,028	887	901	911	-11.4
Physical sciences	567	693	732	788	39.0
Mathematics	316	364	455	761	140.8
Computer sciences and engineering	3,834	5,136	7,740	9,511	148.1
Computer and information sciences	265	376	777	2,116	698.5
Engineering	3,569	4,760	6,963	7,395	107.2
Technical/professional *	6,093	6,543	8,149	11,803	93.7
Education	741	869	908	1,015	37.0
Business and other technical/professional *	5,352	5,674	7,241	10,788	101.6
Business and management	3,316	3,499	4,566	7,428	124.0
Other technical professional *	2,036	2,175	2,675	3,360	65.0
			Master's degrees		
All fields	17,338	19,405	22,057	26,952	55.5
Humanities and social/behavioral sciences	3,076	3,085	3,737	4,357	41.6
Humanities	1,429	1,426	1,872	2,236	56.5
Social and behavioral sciences	1,647	1,659	1,865	2,121	28.8
Natural and computer sciences and engineering	5,410	6,059	7,085	9,781	80.8
Natural sciences	1,503	1,642	1,618	2,259	50.3
Life sciences	477	464	368	474	-0.6
Physical sciences	656	706	786	1,100	67.7
Mathematics	370	472	464	685	85.1
Computer sciences and engineering	3,907	4,417	5,467	7,522	92.5
Computer and information sciences	366	465	904	1,709	366.9
Engineering	3,541	3,952	4,563	5,813	64.2
Technical/professional *	8,852	10,261	11,235	12,814	44.8
Education	2,391	2,744	2,699	2,919	22.1
Business and other technical/professional *	6,461	7,517	8,536	9,895	53.1
Business and management	3,781	4,388	5,051	5,816	53.8
Other technical/professional *	2,680	3,129	3,485	4,079	52.2

Table 2:9-1 Number of degrees earned by foreign students, by field and degree level: Selected academic years ending 1977-1985—Continued

Field of study	1977	1979	1981	1985	Percent change 1977-1985
	Doctor's degrees				
All fields	3,747	3,915	4,203	5,317	41.9
Humanities and social/behavioral sciences	857	825	895	1,105	28.9
Humanities	326	382	383	415	27.3
Social and behavioral sciences	531	503	512	690	29.9
Natural and computer sciences and engineering	1,926	1,907	2,000	2,775	44.1
Natural sciences	1,034	992	992	1,307	26.4
Life sciences	342	343	289	376	9.9
Physical sciences	532	487	530	682	28.2
Mathematics	160	162	173	249	55.6
Computer sciences and engineering	892	915	1,008	1,468	64.6
Computer and information sciences	45	48	52	70	55.6
Engineering	847	867	956	1,398	65.1
Technical/professional *	964	1,123	1,308	1,437	49.1
Education	381	497	593	598	57.0
Business and other technical/professional *	583	626	715	839	43.9
Business and management	161	163	161	203	26.1
Other technical/professional *	422	463	554	636	50.7

* The technical/professional category does not include computer sciences and engineering.

NOTE: Foreign students are non-United States citizens on temporary visas. The total number of degrees reported in this table for each degree level and field of study is lower, but by no more than 2 percent, than the total actually conferred. This is because racial/ethnic citizenship status data were not imputed for some of the institutions that did not report such data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred, 1980-81 and 1984-85 and Office for Civil Rights, Data on Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, Academic Years 1976-77 and 1978-79).

Table 2:9-2 Percent of degrees earned by foreign students, by field and degree level: Selected academic years ending 1977-1985

Field of study	1977	1979	1981	1985
		Bachelor's degrees		
All fields	1.7	1.9	2.4	3.0
Humanities and social/behavioral sciences	1.3	1.5	1.7	2.1
Humanities	1.3	1.5	1.6	2.0
Social and behavioral sciences	1.3	1.5	1.7	2.1
Natural and computer sciences and engineering	4.0	4.6	5.8	5.7
Natural sciences	2.1	2.3	2.7	3.2
Life sciences	1.8	1.8	2.1	2.4
Physical sciences	2.6	3.0	3.1	3.3
Mathematics	2.2	3.1	4.1	5.1
Computer sciences and engineering	7.0	7.3	8.6	7.1
Computer and information sciences	4.2	4.3	5.1	5.5
Engineering	7.4	7.7	9.3	7.8
Technical/professional *	1.3	1.4	1.7	2.4
Education	0.5	0.7	0.8	1.2
Business and other technical/professional *	1.7	1.6	1.9	2.6
Business and management	2.2	2.0	2.3	3.2
Other technical professional *	1.2	1.2	1.5	1.9
		Master's degrees		
All fields	5.5	6.5	7.5	9.6
Humanities and social/behavioral sciences	5.6	6.2	7.8	9.9
Humanities	4.6	5.0	6.7	8.8
Social and behavioral sciences	6.9	7.9	9.4	11.4
Natural and computer sciences and engineering	15.6	18.1	20.7	23.7
Natural sciences	9.3	10.8	11.8	16.7
Life sciences	6.7	6.8	6.2	9.5
Physical sciences	12.4	13.1	15.0	19.4
Mathematics	10.0	15.6	18.1	24.2
Computer sciences and engineering	21.0	24.2	26.7	27.2
Computer and information sciences	13.4	15.6	21.8	24.6
Engineering	22.3	25.9	27.9	28.0
Technical/professional *	3.9	4.7	5.3	6.6
Education	1.9	2.5	2.7	3.8
Business and other technical/professional *	6.5	7.1	7.5	8.3
Business and management	8.2	8.8	8.8	8.7
Other technical/professional *	5.0	5.6	6.2	7.7

Table 2:9-2 Percent of degrees earned by foreign students, by field and degree level: Selected academic years ending 1977-1985—Continued

Field of study	1977	1979	1981	1985
	Doctor's degrees			
All fields	11.3	12.0	12.8	16.5
Humanities and social/behavioral sciences	7.4	7.8	8.4	11.0
Humanities	6.4	7.2	8.3	9.6
Social and behavioral sciences	8.1	8.4	8.4	12.1
Natural and computer sciences and engineering	18.6	18.9	19.3	25.6
Natural sciences	13.7	13.5	13.1	17.6
Life sciences	10.1	9.7	7.8	11.2
Physical sciences	15.9	15.7	16.9	20.2
Mathematics	19.4	22.2	23.8	36.3
Computer sciences and engineering	32.0	33.6	36.0	43.0
Computer and information sciences	20.8	20.3	20.6	29.2
Engineering	32.9	34.8	37.5	44.0
Technical/professional *	8.7	10.0	11.1	12.5
Education	4.8	6.4	7.5	8.5
Business and other technical/professional *	18.4	17.8	18.6	18.9
Business and management	18.5	18.9	19.1	23.9
Other technical/professional *	18.3	17.4	18.5	17.7

* The technical/professional category does not include computer sciences and engineering.

NOTE: Foreign students are non-United States citizens on temporary visas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Degrees and Other Formal Awards Conferred, 1980-81 and 1984-85 and Office for Civil Rights, Data on Earned Degrees Conferred by Institutions of Higher Education by Race, Ethnicity, and Sex, Academic Years 1976-77 and 1978-79).

Table 2:9–3 Postgraduation plans of foreign doctorate recipients with temporary U.S. visas, by major field: Academic years ending 1976–1987

Year of doctorate	Number of recipients [1]	Percent of recipients			
		Definite plans	Definite plans in the United States		
			Total [2]	Employment	Postdoctoral study
		Natural and computer sciences and engineering [3]			
1976	2,080	61.3	26.4	10.4	15.8
1977	2,024	60.9	28.0	11.8	15.9
1978	1,973	63.8	31.5	12.4	19.1
1979	2,044	67.7	33.0	14.7	18.1
1980	2,131	67.5	34.2	15.8	18.1
1981	2,308	64.8	33.2	18.2	14.8
1982	2,471	65.1	32.7	17.9	14.6
1983	2,725	64.4	31.0	16.0	15.0
1984	2,935	61.5	33.3	15.6	17.6
1985	3,264	62.3	33.2	15.3	17.7
1986	3,338	64.7	37.1	15.5	21.5
1987	3,671	64.6	35.9	13.4	22.5
		All other fields			
1976	1,449	66.5	12.7	10.5	2.1
1977	1,424	66.1	12.2	10.3	1.5
1978	1,448	69.5	14.4	12.6	1.7
1979	1,543	67.3	13.1	11.0	1.9
1980	1,512	66.7	11.8	8.9	2.8
1981	1,632	68.3	13.8	10.8	2.8
1982	1,733	65.6	12.0	9.6	2.4
1983	1,774	63.7	13.0	10.8	2.3
1984	1,892	61.9	12.7	10.1	2.5
1985	1,965	63.9	15.7	13.1	2.5
1986	1,929	65.3	18.4	15.0	3.2
1987	1,922	64.8	20.9	17.2	3.7

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[1] Due to differences in survey design, the total number of doctorates received by foreign students obtained by the National Science Foundation's survey is smaller than that obtained by the U.S. Department of Education's survey (see table 2:9–1).

[2] Includes a small proportion (less than 1 percent) whose plans are unknown.

[3] Physical and life sciences, mathematics, computer and information sciences, and engineering.

SOURCE: National Science Foundation, *Science and Engineering Doctorates: 1960–86, Early Release of Summary Statistics on Science and Engineering Doctorates 1987*; and unpublished tabulations.

Indicator 2:10

Table 2:10–1 Median earnings and earnings ratios of year-round, full-time workers 25–34 years old, by educational attainment and by race and gender: 1978–1988

Year (March)	Median earnings: 4 years of high school	Earning ratios *		Median earnings: 4 years of high school	Earning ratios *	
		1–3 years college to 4 years high school	4 or more years college to 4 years high school		1–3 years college to 4 years high school	4 or more years college to 4 years high school
		White			Black	
1978	$11,825	1.07	1.20	$9,330	1.12	1.38
1979	12,351	1.09	1.24	10,410	1.15	1.27
1980	13,357	1.13	1.24	10,950	1.14	1.35
1981	14,563	1.09	1.24	12,001	1.08	1.29
1982	15,308	1.10	1.33	13,106	1.06	1.27
1983	15,754	1.14	1.32	13,083	1.12	1.34
1984	16,356	1.15	1.32	13,229	1.19	1.38
1985	17,597	1.14	1.30	13,337	1.14	1.50
1986	17,708	1.18	1.43	14,276	1.09	1.46
1987	18,238	1.16	1.41	14,357	1.12	1.49
1988	18 869	1.12	1.41	14,699	1.21	1.45
		Men			Women	
1978	13,472	1.06	1.17	8,662	1.12	1.29
1979	15,048	1.02	1.12	9,195	1.09	1.29
1980	15,860	1.04	1.16	9,914	1.13	1.33
1981	16,752	1.05	1.21	11,001	1.12	1.35
1982	17,664	1.09	1.27	11,755	1.13	1.39
1983	18,137	1.12	1.28	12,475	1.16	1.37
1984	18,815	1.12	1.32	12,867	1.19	1.37
1985	20,399	1.10	1.26	13,571	1.15	1.43
1986	20,092	1.14	1.35	14,246	1.15	1.47
1987	20,540	1.14	1.35	14,424	1.17	1.52
1988	21,317	1.11	1.35	15,150	1.15	1.50

* The earnings ratio is the earnings of those completing 1–3 or 4 or more years of college divided by the earnings of those completing only 4 years of high school.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years; and unpublished tabulations.

Table 2:10–2 Median earnings of year-round, full-time workers 25–34 years old, by educational attainment and by race and gender: 1978–1988

Year (March)	4 years of high school	1–3 years of college	4 or more years of college	4 years of high school	1–3 years of college	4 or more years of college
		White			Black	
1978	$11,825	$12,711	$14,221	$9,330	$10,430	$12,843
1979	12,351	13,431	15,298	10,410	11,922	13,192
1980	13,357	15,094	16,497	10,950	12,492	14,802
1981	14,563	15,851	18,111	12,001	12,940	15,471
1982	15,308	16,860	20,314	13,106	13,939	16,608
1983	15,754	17,916	20,864	13,083	14,696	17,568
1984	16,356	18,772	21,527	13,229	15,681	18,266
1985	17,597	20,051	22,945	13,337	15,168	19,968
1986	17,708	20,864	25,393	14,276	15,500	20,815
1987	18,238	21,224	25,795	14,357	16,133	21,395
1988	18,869	21,049	26,674	14,699	17,745	21,289
		Men			Women	
1978	13,472	14,237	15,770	8,662	9,669	11,161
1979	15,048	15,358	16,861	9,195	10,048	11,880
1980	15,860	16,512	18,359	9,914	11,164	13,163
1981	16,752	17,618	20,320	11,001	12,357	14,874
1982	17,664	19,321	22,464	11,755	13,337	16,286
1983	18,137	20,307	23,253	12,475	14,419	17,087
1984	18,815	20,988	24,799	12,867	15,361	17,587
1985	20,399	22,371	25,720	13,571	15,609	19,351
1986	20,092	22,972	27,199	14,246	16,382	20,999
1987	20,540	23,469	27,693	14,424	16,946	21,883
1988	21,317	23,582	28,715	15,150	17,448	22,674

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years; and unpublished tabulations.

Table 2:10–3 Standard errors for median earnings and earnings ratios of year-round, full-time workers 25–34 years old, by educational attainment and by race and gender: 1978–1988 (table 2:10–1)

Year (March)	Median earnings: 4 years of high school	Earnings ratios		Median earnings: 4 years of high school	Earnings ratios	
		1–3 years of college to 4 years high school	4 or more years college to 4 years high school		1–3 years college to 4 years high school	4 or more years college to 4 years high school
		White			Black	
1978	$128	0.02	0.02	$242	0.05	0.05
1979	132	0.02	0.02	315	0.06	0.07
1980	156	0.02	0.02	409	0.05	0.08
1981	173	0.02	0.02	341	0.05	0.06
1982	129	0.02	0.02	335	0.04	0.07
1983	140	0.02	0.02	424	0.06	0.06
1984	151	0.02	0.02	345	0.04	0.07
1985	193	0.02	0.02	297	0.05	0.06
1986	196	0.02	0.02	377	0.04	0.07
1987	203	0.02	0.02	467	0.05	0.07
1988	215	0.02	0.02	435	0.05	0.06
		Men			Women	
1978	137	0.02	0.02	106	0.02	0.02
1979	134	0.01	0.02	129	0.02	0.03
1980	137	0.01	0.02	106	0.02	0.02
1981	163	0.02	0.02	117	0.02	0.03
1982	215	0.02	0.02	150	0.02	0.02
1983	241	0.02	0.02	133	0.02	0.02
1984	266	0.02	0.03	147	0.02	0.02
1985	175	0.02	0.01	170	0.02	0.03
1986	234	0.02	0.02	207	0.02	0.03
1987	202	0.02	0.02	222	0.03	0.03
1988	221	0.02	0.02	137	0.02	0.02

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years; and unpublished tabulations.

Table 2:10–4 Standard errors for median earnings of year-round, full-time workers 25–34 years old, by educational attainment and by race and gender: 1978–1988 (table 2:10–2)

Year (March)	4 years of high school	1–3 years of college	4 or more years of college	4 years of high school	1–3 years of college	4 or more years of college
		White			Black	
1978	$128	$135	$156	$242	$354	$373
1979	132	187	128	315	522	602
1980	156	154	157	409	337	739
1981	173	159	206	341	440	544
1982	129	203	164	335	396	754
1983	140	258	184	424	559	614
1984	151	277	217	345	383	754
1985	193	247	249	297	500	726
1986	196	224	166	377	414	769
1987	203	239	189	467	483	821
1988	215	234	192	435	559	522
		Men			Women	
1978	137	197	129	106	145	154
1979	134	137	183	129	146	184
1980	137	189	234	106	191	176
1981	163	233	184	117	160	229
1982	215	338	261	150	188	204
1983	241	204	303	133	257	221
1984	266	246	327	147	190	232
1985	175	303	186	170	197	343
1986	234	353	235	207	240	246
1987	202	395	264	222	294	270
1988	221	392	285	137	272	296

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years; and unpublished tabulations.

Table 2:10–5 Number of earners for median earnings of year-round, full-time workers 25–34 years old, by educational attainment and by race and gender: 1978–1988 (table 2:10–2)

(In thousands)

Year (March)	4 years of high school	1–3 years of high school	4 or more years of college	4 years of high school	1–3 years of college	4 or more years of college
		White			Black	
1978	5,010	3,100	4,124	710	397	253
1979	5,367	3,396	4,390	733	394	293
1980	5,854	3,539	4,784	841	484	291
1981	6,185	3,657	4,866	798	529	305
1982	6,243	3,580	4,998	871	539	347
1983	5,765	3,510	5,173	843	491	403
1984	6,201	3,657	5,401	1,001	479	409
1985	6,955	4,153	5,366	1,022	579	438
1986	7,215	4,054	5,762	1,091	610	513
1987	7,328	4,069	5,824	1,154	655	450
1988	7,879	4,263	5,796	1,242	642	479
		Men			Women	
1978	3,642	2,400	3,106	2,182	1,154	1,399
1979	3,785	2,634	3,269	2,399	1,230	1,553
1980	4,083	2,694	3,537	2,731	1,421	1,719
1981	4,274	2,682	3,539	2,831	1,611	1,843
1982	4,370	2,555	3,524	2,890	1,682	2,022
1983	3,875	2,464	3,601	2,858	1,635	2,206
1984	4,304	2,490	3,567	3,025	1,764	2,492
1985	4,824	2,860	3,626	3,312	2,015	2,444
1986	5,092	2,825	3,888	3,388	1,976	2,629
1987	5,215	2,817	3,850	3,428	2,093	2,720
1988	5,522	2,869	3,848	3,756	2,191	2,746

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey, March of various years; and unpublished tabulations.

Indicator 2:11

Table 2:11-1 Research and development (R&D) expenditures at doctorate-granting institutions, by source of funds: Fiscal years 1972–1987

Year [1]	R&D expenditures at doctorate-granting institutions			National R&D expenditures as a percent of GNP	Source of funds at doctorate-granting institutions					
	Current dollars	Constant 1982 dollars [2]	As a percent of national R&D expenditures		Total	Federal gov't	State/ local gov't	Industry	Institution	Other
	(In thousands)				(Percentage distribution)					
1972	$2,568,573	$5,523,813	9.0	2.3	100.0	68.3	10.2	2.8	11.6	7.1
1973	2,809,160	5,675,071	9.1	2.3	100.0	69.0	10.0	2.9	11.1	7.0
1974	2,953,658	5,469,737	9.0	2.2	100.0	67.4	10.0	3.2	12.3	7.2
1975	3,338,409	5,629,695	9.5	2.2	100.0	67.1	9.7	3.3	12.3	7.6
1976	3,656,888	5,795,385	9.4	2.2	100.0	67.4	9.7	3.3	11.9	7.6
1977	3,987,885	5,925,535	9.3	2.1	100.0	67.1	9.2	3.4	12.6	7.7
1978	4,540,256	6,288,443	9.4	2.1	100.0	66.2	8.9	3.7	13.4	7.8
1979	5,271,643	6,706,925	9.6	2.2	100.0	67.0	8.8	3.6	13.6	7.0
1980	5,960,505	6,955,082	9.5	2.3	100.0	67.6	8.1	3.9	13.8	6.7
1981	6,733,086	7,162,857	9.4	2.4	100.0	66.6	8.0	4.3	14.8	6.3
1982	7,207,151	7,207,151	9.1	2.5	100.0	65.0	8.3	4.6	15.4	6.7
1983	7,761,865	7,470,515	8.9	2.6	100.0	63.2	7.9	4.9	16.7	7.4
1984	8,484,591	7,877,986	8.7	2.6	100.0	62.8	7.9	5.5	16.6	7.1
1985	9,550,880	8,612,155	8.9	2.7	100.0	62.4	7.7	5.8	16.9	7.2
1986	10,769,068	9,454,845	9.2	2.7	100.0	61.3	8.4	6.3	17.3	6.7
1987	11,930,997	10,136,786	9.6	2.8	100.0	60.6	8.4	6.4	17.7	6.9

[1] Data for 1980 through 1986 revised from previously published figures.

[2] Based on GNP implicit price deflator; base year = 1982.

NOTE: R&D expenditures include separately budgeted expenditures for basic research and for applied research and development. They do not include expenditures by university-administered, federally funded research and development centers (FFRDC's). R&D expenditures at doctorate-granting institutions made up 98.6 percent of total academic R&D expenditures in 1986. Detail may not add to totals due to rounding.

SOURCE: National Science Board, *Science & Engineering Indicators–1987*; National Science Foundation, *Early Release of Summary Statistics on Academic Science/ Engineering Resources*, October 1988 (based on Scientific and Engineering Expenditures at Universities and Colleges survey, various years); U.S. Council of Economic Advisors, *Economic Indicators*, November 1988.

Indicator 2:12

Table 2:12–1 Percentage distribution of general education revenues of higher education, by control and level of institution and source of revenue: Fiscal year 1986

Source of revenue	Level of institution		
	All	4-year	2-year
	All institutions		
Total	100.0	100.0	100.0
Tuition and fees *	27.0	28.8	16.4
Government appropriations	42.3	38.2	66.3
Federal	2.1	2.4	0.6
State and local	40.2	35.8	65.8
Government grants and contracts	17.5	17.9	15.1
Federal	15.0	15.6	11.6
State and local	2.5	2.3	3.5
Private gifts, grants, and contracts	7.1	8.1	1.2
Endowment income	3.0	3.5	0.3
Sales and services of educational activities	3.1	3.5	0.6
	Public institutions		
Total	100.0	100.0	100.0
Tuition and fees *	14.6	15.2	12.1
Government appropriations	61.1	58.4	72.0
Federal	2.7	3.2	0.6
State and local	58.4	55.2	71.4
Government grants and contracts	16.4	16.9	14.6
Federal	13.8	14.6	10.9
State and local	2.6	2.3	3.7
Private gifts, grants, and contracts	4.1	4.9	0.6
Endowment income	0.8	0.9	0.1
Sales and services of educational activities	3.1	3.7	0.6

Table 2:12–1 Percentage distribution of general education revenues of higher education, by control and level of institution and source of revenue: Fiscal year 1986—Continued

Source of revenue	Level of institution		
	All	4-year	2-year
		Private institutions	
Total	100.0	100.0	100.0
Tuition and fees *	53.4	52.9	66.7
Government appropriations	2.3	2.3	1.1
Federal	0.9	0.9	0.6
State and local	1.4	1.4	0.6
Government grants and contracts	19.8	19.8	21.4
Federal	17.5	17.4	19.4
State and local	2.4	2.4	2.0
Private gifts, grants, and contracts	13.6	13.8	7.5
Endowment income	7.7	7.9	2.0
Sales and services of educational activities	3.2	3.3	1.3

* Excludes Pell Grants.

NOTE: Percentages were calculated from unrounded data.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on the HEGIS survey Financial Statistics of Institutions of Higher Education, fiscal year 1986).

Table 2:12-2 General education revenues in *current* dollars for institutions of higher education, by control of institution and source of revenue: Selected fiscal years 1976–1986

(In billions)

Source of revenue	1976	1978	1980	1982	1984	1986
			All institutions			
Total	$30.7	$36.5	$44.7	$54.7	$61.6	$76.1
Tuition and fees *	8.2	9.9	11.9	15.8	17.6	20.6
Government appropriations	14.0	16.7	20.1	23.9	26.9	32.2
Federal	0.9	1.0	1.2	1.3	1.4	1.6
State and local	13.2	15.7	18.9	22.6	25.5	30.6
Government grants and contracts	5.2	5.9	7.5	8.2	8.8	13.3
Federal	4.5	5.1	6.5	7.0	7.4	11.4
State and local	0.7	0.8	1.0	1.2	1.4	1.9
Private gifts, grants, and contracts	1.9	2.3	2.8	3.6	4.4	5.4
Endowment income	0.7	0.8	1.2	1.6	1.9	2.3
Sales and services of educational activities	0.6	0.9	1.2	1.6	2.0	2.4
			Public institutions			
Total	21.7	25.7	31.3	37.5	41.6	51.8
Tuition and fees *	3.5	4.1	4.9	6.4	6.6	7.6
Government appropriations	13.8	16.4	19.7	23.4	26.4	31.6
Federal	0.8	0.9	1.0	1.1	1.2	1.4
State and local	13.0	15.5	18.7	22.3	25.2	30.2
Government grants and contracts	3.3	3.7	4.7	5.1	5.4	8.5
Federal	2.8	3.1	4.0	4.2	4.4	7.2
State and local	0.5	0.6	0.7	0.9	1.0	1.3
Private gifts, grants, and contracts	0.6	0.8	1.0	1.3	1.6	2.1
Endowment income	0.1	0.1	0.2	0.2	0.3	0.4
Sales and services of educational activities	0.4	0.6	0.8	1.1	1.3	1.6

Table 2:12–2 General education revenues in *current* dollars for institutions of higher education, by control of institution and source of revenue: Selected fiscal years 1976–1986—Continued

(In billions)

Source of revenue	1976	1978	1980	1982	1984	1986
	Private institutions					
Total	$9.0	$10.8	$13.6	$17.3	$20.0	$24.3
Tuition and fees *	4.7	5.7	7.1	9.4	11.0	13.0
Government appropriations	0.3	0.4	0.4	0.5	0.5	0.5
Federal	0.1	0.2	0.2	0.2	0.2	0.2
State and local	0.2	0.2	0.2	0.3	0.3	0.3
Government grants and contracts	1.9	2.2	2.9	3.2	3.4	4.8
Federal	1.7	2.0	2.6	2.8	2.9	4.2
State and local	0.2	0.2	0.3	0.4	0.5	0.6
Private gifts, grants, and contracts	1.3	1.5	1.8	2.3	2.8	3.3
Endowment income	0.6	0.7	1.0	1.4	1.6	1.9
Sales and services of educational activities	0.2	0.3	0.4	0.5	0.7	0.8

* Excludes Pell Grants.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Financial Statistics of Institutions of Higher Education, various years).

Table 2:12–3 General education revenues in *constant* 1986 dollars for institutions of higher education, by control of institution and source of revenue: Selected fiscal years 1976–1986

(In billions)

Source of revenue	1976	1978	1980	1982	1984	1986
			All institutions			
Total	$60.3	$63.4	$62.9	$63.2	$65.8	$76.1
Tuition and fees *	16.0	17.1	16.7	18.2	18.8	20.6
Government appropriations	27.6	29.1	28.2	27.6	28.7	32.2
Federal	1.8	1.8	1.7	1.5	1.5	1.6
State and local	25.8	27.3	26.5	26.1	27.2	30.6
Government grants and contracts	10.2	10.2	10.6	9.5	9.4	13.3
Federal	8.8	8.8	9.2	8.1	7.9	11.4
State and local	1.4	1.4	1.5	1.4	1.5	1.9
Private gifts, grants, and contracts	3.6	4.0	3.9	4.1	4.7	5.4
Endowment income	1.3	1.4	1.6	1.8	2.0	2.3
Sales and services of educational activities	1.3	1.5	1.7	1.8	2.1	2.4
			Public institutions			
Total	42.5	44.6	43.8	43.3	44.5	51.8
Tuition and fees *	6.8	7.2	6.8	7.4	7.1	7.6
Government appropriations	27.0	28.5	27.6	27.0	28.2	31.6
Federal	1.5	1.6	1.4	1.3	1.3	1.4
State and local	25.5	26.9	26.2	25.8	26.9	30.2
Government grants and contracts	6.5	6.4	6.6	5.9	5.8	8.5
Federal	5.5	5.4	5.6	4.9	4.7	7.2
State and local	0.9	1.0	1.0	1.0	1.0	1.3
Private gifts, grants, and contracts	1.2	1.3	1.4	1.5	1.7	2.1
Endowment income	0.2	0.2	0.3	0.3	0.3	0.4
Sales and services of educational activities	0.8	1.0	1.1	1.2	1.4	1.6

Table 2:12–3 General education revenues in *constant* 1986 dollars for institutions of higher education, by control of institution and source of revenue: Selected fiscal years 1976–1986—Continued

(In billions)

Source of revenue	1976	1978	1980	1982	1984	1986
	Private institutions					
Total	$17.7	$18.8	$19.1	$19.9	$21.3	$24.3
Tuition and fees*	9.2	9.9	10.0	10.8	11.7	13.0
Government appropriations	0.6	0.6	0.6	0.6	0.5	0.5
Federal	0.2	0.3	0.3	0.2	0.2	0.2
State and local	0.3	0.3	0.3	0.3	0.3	0.3
Government grants and contracts	3.8	3.8	4.1	3.7	3.6	4.8
Federal	3.3	3.4	3.6	3.3	3.1	4.2
State and local	0.5	0.4	0.5	0.4	0.5	0.6
Private gifts, grants, and contracts	2.6	2.7	2.6	2.6	3.0	3.3
Endowment income	1.2	1.2	1.4	1.6	1.7	1.9
Sales and services of educational activities	0.4	0.6	0.6	0.6	0.7	0.8

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* Excludes Pell Grants.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, various years (based on the HEGIS survey Financial Statistics of Institution of Higher Education, various years).

Supplemental note 2:12 Revenues of colleges and universities

General funds revenues as used in this indicator exclude four categories of revenues received by many institutions:

- sales and services of auxiliary enterprises;
- sales and services of hospitals;
- independent operations (Federally funded research and development centers); and
- other sources.

In addition, the amount of funds reported for Pell Grants has been subtracted out of the tuition income figure.

Table 2:13–1 Index of expenditures in constant dollars per full-time-equivalent student at *public* institutions of higher education, by type of institution: Academic years ending 1977–1986

(1977 = 100)

Year	Educational and general expenditures [1]							
	Total	Instruction	Administration [2]	Research	Libraries	Public service	Operation and plant maintenance	Scholarships and fellowships
				Universities				
1977	100	100	100	100	100	100	100	100
1978	101	102	103	102	96	98	102	96
1979	103	103	104	106	94	103	105	90
1980	99	98	96	105	103	98	99	86
1981	96	95	96	103	89	99	96	85
1982	96	95	97	100	88	96	98	83
1983	97	97	98	102	91	97	101	85
1984	101	100	102	105	96	100	104	91
1985	107	105	112	114	98	106	109	96
1986	114	110	120	122	104	113	110	107
				Other 4-year institutions				
1977	100	100	100	100	100	100	100	100
1978	101	101	102	102	100	100	102	90
1979	102	101	106	110	99	102	103	85
1980	100	97	105	114	98	106	102	84
1981	98	95	103	112	98	106	102	79
1982	99	97	103	107	94	105	104	71
1983	98	97	102	106	92	105	104	74
1984	100	98	110	108	97	108	99	74
1985	108	104	118	120	101	123	109	74
1986	114	110	125	132	104	129	105	84

Table 2:13–1 Index of expenditures in constant dollars per full-time-equivalent student at *public* institutions of higher education, by type of institution: Academic years ending 1977–1986—Continued

(1977 = 100)

Year	Educational and general expenditures [1]							
	Total	Instruction	Administration [2]	Research	Libraries	Public service	Operation and plant maintenance	Scholarships and fellowships
	2-year institutions							
1977	100	100	100	(3)	100	(3)	100	100
1978	101	100	105	(3)	101	(3)	102	76
1979	102	100	108	(3)	98	(3)	103	78
1980	97	96	102	(3)	89	(3)	102	78
1981	93	92	97	(3)	83	(3)	99	71
1982	93	93	98	(3)	90	(3)	102	66
1983	90	90	97	(3)	77	(3)	98	65
1984	92	92	100	(3)	78	(3)	100	64
1985	103	101	113	(3)	85	(3)	111	76
1986	108	106	121	(3)	89	(3)	115	81

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[1] Data are in constant dollars, adjusted by the Consumer Price Index for the academic year (July 1–June 30). Mandatory transfers are included in the total but are not shown separately.

[2] Administration expenditures include institutional support, student services, and academic support minus library costs.

[3] Not calculated; expenditure category constituted 2 percent or less of total expenditures in most years.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Recent Trends in Higher Education Finance, 1976–77 to 1985–86," *Higher Education Administrative Costs: Continuing the Study*, (based on the HEGIS survey Financial Statistics of Institutions of Higher Education, Institutional Characteristics of Colleges and Universities, and Fall Enrollment in Colleges and Universities), January 1988.

Table 2:13–2 Index of expenditures in constant dollars per full-time-equivalent student at *private*, nonprofit institutions of higher education, by type of institution: Academic years ending 1977–1986

(1977 = 100)

Year	Educational and general expenditures [1]							
	Total	Instruction	Administration [2]	Research	Libraries	Public service	Operation and plant maintenance	Scholarships and fellowships
				Universities				
1977	100	100	100	100	100	100	100	100
1978	99	99	100	98	100	93	99	102
1979	98	97	104	97	92	92	101	98
1980	97	96	102	94	86	100	98	94
1981	97	97	102	91	86	90	101	98
1982	97	100	103	88	87	88	105	98
1983	100	104	112	85	87	93	105	101
1984	109	110	124	92	99	96	112	118
1985	115	115	130	99	97	125	117	127
1986	122	121	139	107	102	130	120	137
				Other 4-year institutions				
1977	100	100	100	100	100	100	100	100
1978	100	100	101	95	100	90	101	98
1979	99	99	101	103	97	90	99	95
1980	98	96	100	103	92	88	100	96
1981	97	94	102	97	90	94	100	98
1982	99	96	105	91	90	104	101	101
1983	103	100	111	91	96	104	103	104
1984	108	104	116	95	99	108	106	115
1985	114	109	123	103	103	116	106	127
1986	120	113	130	115	107	128	110	139

Table 2:13–2 Index of expenditures in constant dollars per full-time-equivalent student at *private*, nonprofit institutions of higher education, by type of institution: Academic years ending 1977–1986—Continued

(1977 = 100)

Year	Educational and general expenditures [1]							
	Total	Instruction	Administration [2]	Research	Libraries	Public service	Operation and plant maintenance	Scholarships and fellowships
	2-year institutions							
1977	100	100	100	(3)	100	(3)	100	100
1978	95	94	98	(3)	96	(3)	93	93
1979	97	97	101	(3)	92	(3)	90	99
1980	93	92	98	(3)	87	(3)	86	102
1981	92	90	97	(3)	78	(3)	88	103
1982	90	89	98	(3)	75	(3)	83	91
1983	95	93	101	(3)	76	(3)	89	106
1984	96	91	104	(3)	77	(3)	93	115
1985	107	102	118	(3)	86	(3)	101	129
1986	110	106	122	(3)	87	(3)	102	133

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[1] Data are in constant dollars, adjusted by the Consumer Price Index for the academic year (July 1–June 30). Mandatory transfers are included in the total but are not shown separately.

[2] Administration expenditures include institutional support, student services, and academic support minus library costs.

[3] Not calculated; expenditure category constituted 2 percent or less of total expenditures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Recent Trends in Higher Education Finance, 1976–77 to 1985–86," *Higher Education Administrative Costs: Continuing the Study*, (based on the HEGIS survey Financial Statistics of Institutions of Higher Education, Institutional Characteristics of Colleges and Universities, and Fall Enrollment in Colleges and Universities), January 1988.

Table 2:13–3 Index of average undergraduate tuition charges in *constant* dollars at institutions of higher education, by type and control of institution: Academic years ending 1977–1986

(1977=100)

Year	Public institutions			Private institutions		
	University	Other 4-year	2-year	University	Other 4-year	2-year
1977	100	100	100	100	100	100
1978	100	99	101	99	100	100
1979	97	94	99	98	101	99
1980	92	89	95	94	97	98
1981	90	87	92	95	98	103
1982	94	90	95	100	102	106
1983	101	99	100	109	110	113
1984	107	108	108	117	116	112
1985	112	110	115	124	121	121
1986	118	115	118	132	127	127

NOTE: Tuition charges (tuition and fees) are in constant dollars, adjusted by the Consumer Price Index for the academic year (July 1–June 30). They are for the entire academic year and are average charges paid by students. They were calculated on the basis of full-time-equivalent undergraduates. Tuition at public institutions is the charge to in-State students. The amount at private institutions includes charges at both nonprofit and proprietary schools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, "Recent Trends in Higher Education Finance, 1976-77 to 1985-86," *Higher Education Administrative Costs: Continuing the Study*, (based on the HEGIS survey Financial Statistics of Institutions of Higher Education, Institutional Characteristics of Colleges and Universities, and Fall Enrollment in Colleges and Universities), January 1988.

Indicator 2:14

Table 2:14–1 Average faculty salaries in *constant* 1985–86 dollars in institutions of higher education, by academic rank and control and type of institution: Academic years ending 1972–1986

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
				All institutions					
1972	$48,525	$36,746	$30,374	$49,018	$37,399	$30,904	$47,553	$35,280	$29,140
1973	48,759	37,041	30,577	49,427	37,874	31,227	47,450	35,190	29,084
1975	44,673	33,884	27,921	45,344	34,814	28,690	43,281	31,690	26,131
1976	44,354	33,400	27,397	45,021	34,328	28,145	43,020	31,230	25,732
1977	44,115	33,199	27,186	44,671	34,036	27,867	42,928	31,134	25,631
1978	43,669	32,990	26,983	44,294	33,853	27,724	42,289	30,790	25,260
1979	42,045	31,843	26,008	42,555	32,664	26,734	40,871	29,735	24,330
1980	39,791	30,068	24,481	40,349	30,895	25,211	38,499	28,006	22,852
1981	38,638	29,166	23,747	39,045	29,867	24,413	37,684	27,431	22,322
1982	38,778	29,280	23,850	38,948	29,875	24,480	38,371	27,782	22,519
1983	39,396	29,842	24,449	39,322	30,313	24,983	39,575	28,684	23,338
1985	40,896	30,813	25,383	40,667	31,236	25,885	41,448	29,803	24,352
1986	42,268	31,787	26,277	42,328	32,367	26,951	42,118	30,400	24,891
				4-year institutions					
1972	48,858	36,771	30,347	49,446	37,426	30,884	47,745	35,408	29,221
1973	49,117	37,016	30,469	49,913	37,865	31,121	47,659	35,295	29,150
1975	44,987	33,775	27,722	45,796	34,720	28,486	43,438	31,790	26,210
1976	44,684	33,385	27,338	45,472	34,375	28,137	43,216	31,331	25,811
1977	44,356	33,188	27,144	45,005	34,095	27,882	43,047	31,197	25,690
1978	43,886	32,960	26,863	44,596	33,899	27,651	42,418	30,858	25,315
1979	42,291	31,847	25,918	42,896	32,751	26,693	40,985	29,808	24,396
1980	40,072	30,093	24,405	40,743	31,022	25,190	38,625	28,072	22,916
1981	38,968	29,230	23,704	39,504	30,026	24,428	37,804	27,499	22,385
1982	39,112	29,341	23,819	39,403	30,032	24,513	38,466	27,830	22,578
1983	39,783	29,944	24,448	39,815	30,496	25,038	39,715	28,765	23,410
1985	41,416	30,964	25,449	41,341	31,482	26,020	41,581	29,891	24,446
1986	42,803	31,940	26,335	43,044	32,642	27,100	42,260	30,486	24,987

Table 2:14–1 Average faculty salaries in *constant* 1985–86 dollars in institutions of higher education, by academic rank and control and type of institution: Academic years ending 1972–1986—Continued

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
					Universities				
1972	52,865	38,826	31,771	52,038	38,596	31,596	54,939	39,511	32,358
1973	52,961	38,906	31,833	52,223	38,721	31,675	54,669	39,425	32,325
1975	48,457	35,403	28,874	47,726	35,337	28,894	50,020	35,572	28,826
1976	48,331	35,205	28,634	47,624	35,271	28,774	49,764	35,036	28,311
1977	48,059	34,959	28,341	47,234	34,900	28,367	49,897	35,126	28,277
1978	47,378	34,555	27,915	46,551	34,444	27,868	49,251	34,868	28,029
1979	45,862	33,415	26,949	45,055	33,352	26,906	47,776	33,595	27,060
1980	43,279	31,436	25,303	42,457	31,357	25,274	45,243	31,652	25,378
1981	42,243	30,646	24,731	41,392	30,490	24,672	44,259	31,071	24,867
1982	42,424	30,777	25,010	41,294	30,494	24,872	45,174	31,580	25,336
1983	43,645	31,594	25,937	42,168	31,133	25,620	47,286	32,914	26,709
1985	45,398	32,624	27,129	43,508	31,965	26,656	50,016	34,441	28,271
1986	46,994	33,704	28,242	45,322	33,133	27,887	51,355	35,307	29,125
					Other 4-year institutions				
1972	$44,230	$35,004	$29,300	$45,784	$36,195	$30,219	$42,045	$33,120	$27,876
1973	44,862	35,431	29,517	46,888	37,002	30,640	41,944	32,940	27,773
1975	41,628	32,681	27,077	43,783	34,259	28,230	37,915	29,774	25,060
1976	41,188	32,209	26,627	43,289	33,733	27,752	37,572	29,400	24,680
1977	40,896	32,065	26,472	42,786	33,520	27,574	37,423	29,307	24,555
1978	40,772	31,975	26,280	42,753	33,523	27,515	36,988	28,959	24,146
1979	39,210	30,910	25,349	40,927	32,351	26,560	35,801	28,069	23,268
1980	37,322	29,267	23,895	39,182	30,791	25,135	33,649	26,387	21,858
1981	36,182	28,342	23,115	37,814	29,700	24,267	32,884	25,759	21,282
1982	36,405	28,475	23,156	37,778	29,718	24,280	33,583	26,128	21,428
1983	36,715	28,946	23,628	37,826	30,054	24,659	34,469	26,930	22,091
1985	38,288	29,940	24,519	39,530	31,139	25,605	35,796	27,831	22,903
1986	39,610	30,864	25,314	41,170	32,296	26,597	36,455	28,365	23,412

Indicator 2:14

Table 2:14–1 Average faculty salaries in *constant* 1985–86 dollars in institutions of higher education, by academic rank and control and type of institution: Academic years ending 1972–1986—Continued

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
				2-year institutions					
1972	39,049	36,387	30,666	40,241	37,113	31,065	27,281	27,090	24,544
1973	42,363	37,353	31,559	43,416	37,948	31,914	27,183	28,149	25,244
1975	39,874	34,962	29,329	40,573	35,480	29,698	26,219	25,547	22,385
1976	38,784	33,544	27,853	39,732	34,006	28,188	24,327	24,749	21,761
1977	38,923	33,305	27,526	39,596	33,596	27,781	26,309	25,881	22,230
1978	39,651	33,264	27,838	40,348	33,549	28,073	24,570	25,060	21,620
1979	37,678	31,805	26,668	38,222	32,094	26,941	25,090	24,160	20,440
1980	35,184	29,845	25,044	35,724	30,099	25,315	23,204	22,682	19,042
1981	33,330	28,583	24,080	33,772	28,831	24,336	23,426	22,219	18,423
1982	33,751	28,733	24,087	34,056	28,895	24,317	24,747	23,253	18,813
1983	34,009	28,966	24,451	34,428	29,208	24,708	23,089	21,825	19,026
1985	34,470	29,532	24,878	34,785	29,776	25,182	24,264	21,997	18,975
1986	36,076	30,483	25,823	36,418	30,733	26,162	24,519	22,291	19,297

NOTE: Salaries are for full-time instructional faculty on 9- or 10-month contracts. They have been converted to constant dollars for the academic year 1985–86 (July 1–June 30) using the Consumer Price Index. Data for 1974 and 1984 are not available.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Salaries and Fringe Benefits, 1971-72 and 1972-73; *Salaries and Tenure of Instructional Faculty in Institutions of Higher Education*, 1974-75; *Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Staff in Institutions of Higher Education 1975-76*; "College Faculty Salaries 1976-86," *OERI Bulletin*, 1987; and *Digest of Education Statistics, 1987*.

Table 2:14–2 Average faculty salaries in *current* dollars in institutions of higher education, by academic rank and control and type of institution: Academic years ending 1972–1986

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
					All institutions				
1972	$18,349	$13,895	$11,486	$18,536	$14,142	$11,686	$17,982	$13,341	$11,019
1973	19,182	14,572	12,029	19,445	14,900	12,285	18,667	13,844	11,442
1975	21,264	16,128	13,290	21,583	16,571	13,656	20,601	15,084	12,438
1976	22,610	17,026	13,966	22,950	17,499	14,347	21,930	15,920	13,117
1977	23,792	17,905	14,662	24,092	18,356	15,029	23,152	16,791	13,823
1978	25,133	18,987	15,530	25,493	19,484	15,956	24,339	17,721	14,538
1979	26,470	20,047	16,374	26,791	20,564	16,831	25,731	18,720	15,317
1980	28,388	21,451	17,465	28,786	22,041	17,986	27,466	19,980	16,303
1981	30,753	23,214	18,901	31,077	23,772	19,431	29,994	21,833	17,767
1982	33,539	25,324	20,628	33,686	25,839	21,173	33,187	24,029	19,477
1983	35,540	26,921	22,056	35,473	27,346	22,538	35,701	25,876	21,054
1985	39,743	29,945	24,668	39,521	30,355	25,155	40,280	28,963	23,666
1986	42,268	31,787	26,277	42,328	32,367	26,951	42,118	30,400	24,891
					4-year institutions				
1972	18,475	13,905	11,475	18,698	14,152	11,678	18,054	13,389	11,050
1973	19,323	14,562	11,987	19,636	14,896	12,243	18,749	13,885	11,468
1975	21,413	16,076	13,195	21,798	16,526	13,559	20,676	15,131	12,476
1976	22,778	17,019	13,936	23,180	17,523	14,343	22,030	15,971	13,158
1977	23,922	17,899	14,639	24,272	18,388	15,037	23,216	16,825	13,855
1978	25,258	18,970	15,461	25,667	19,510	15,914	24,413	17,760	14,570
1979	26,625	20,050	16,317	27,006	20,619	16,805	25,803	18,766	15,359
1980	28,588	21,469	17,411	29,067	22,132	17,971	27,556	20,027	16,349
1981	31,016	23,265	18,867	31,442	23,898	19,442	30,089	21,887	17,816
1982	33,828	25,377	20,601	34,080	25,975	21,201	33,269	24,070	19,526
1983	35,889	27,013	22,055	35,918	27,511	22,588	35,828	25,949	21,118
1985	40,249	30,091	24,731	40,176	30,595	25,287	40,409	29,049	23,757
1986	42,803	31,940	26,335	43,044	32,642	27,100	42,260	30,486	24,987

Table 2:14–2 Average faculty salaries in *current* dollars in institutions of higher education, by academic rank and control and type of institution: Academic years ending 1972–1986—Continued

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
					Universities				
1972	$19,991	$14,682	$12,014	$19,678	$14,595	$11,948	$20,775	$14,941	$12,236
1973	20,835	15,306	12,523	20,545	15,233	12,461	21,507	15,510	12,717
1975	23,065	16,851	13,744	22,717	16,820	13,753	23,809	16,932	13,721
1976	24,637	17,946	14,597	24,277	17,980	14,668	25,368	17,860	14,432
1977	25,919	18,854	15,285	25,474	18,822	15,299	26,910	18,944	15,250
1978	27,268	19,888	16,066	26,792	19,824	16,039	28,346	20,068	16,132
1979	28,873	21,037	16,966	28,365	20,997	16,939	30,078	21,150	17,036
1980	30,876	22,427	18,052	30,290	22,371	18,031	32,277	22,581	18,105
1981	33,622	24,392	19,684	32,945	24,268	19,637	35,227	24,730	19,792
1982	36,693	26,619	21,631	35,715	26,374	21,512	39,071	27,314	21,913
1983	39,373	28,502	23,398	38,041	28,086	23,112	42,658	29,692	24,095
1985	44,119	31,704	26,365	42,282	31,064	25,905	48,606	33,470	27,474
1986	46,994	33,704	28,242	45,322	33,133	27,887	51,355	35,307	29,125
					Other 4-year institutions				
1972	16,725	13,236	11,080	17,313	13,687	11,427	15,899	12,524	10,541
1973	17,649	13,939	11,612	18,446	14,557	12,054	16,501	12,959	10,926
1975	19,814	15,556	12,888	20,840	16,307	13,437	18,047	14,172	11,928
1976	20,996	16,419	13,573	22,067	17,196	14,147	19,153	14,987	12,581
1977	22,056	17,293	14,277	23,075	18,078	14,871	20,183	15,806	13,243
1978	23,466	18,403	15,125	24,606	19,294	15,836	21,288	16,667	13,897
1979	24,685	19,460	15,959	25,766	20,367	16,721	22,539	17,671	14,649
1980	26,626	20,880	17,047	27,953	21,967	17,932	24,006	18,825	15,594
1981	28,798	22,558	18,398	30,097	23,639	19,315	26,173	20,502	16,939
1982	31,487	24,628	20,028	32,674	25,703	21,000	29,046	22,598	18,533
1983	33,121	26,113	21,315	34,124	27,112	22,245	31,095	24,294	19,929
1985	37,209	29,096	23,828	38,416	30,262	24,883	34,787	27,047	22,258
1986	39,610	30,864	25,314	41,170	32,296	26,597	36,455	28,365	23,412

Table 2:14–2 Average faculty salaries in *current* dollars in institutions of higher education, by academic rank and control and type of institution: Academic years ending 1972–1986—Continued

Year	All institutions			Public institutions			Private institutions		
	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor	Professor	Associate professor	Assistant professor
				2-year institutions					
1972	$14,766	$13,760	$11,596	$15,217	$14,034	$11,747	$10,316	$10,244	$9,281
1973	16,666	14,695	12,415	17,080	14,929	12,555	10,694	11,074	9,931
1975	18,980	16,641	13,960	19,312	16,888	14,136	12,480	12,160	10,655
1976	19,770	17,100	14,199	20,254	17,335	14,369	12,401	12,616	11,093
1977	20,992	17,962	14,845	21,355	18,119	14,983	14,189	13,958	11,989
1978	22,821	19,145	16,022	23,222	19,309	16,157	14,141	14,423	12,443
1979	23,721	20,023	16,789	24,063	20,205	16,961	15,796	15,210	12,868
1980	25,101	21,292	17,867	25,486	21,473	18,060	16,554	16,182	13,585
1981	26,528	22,750	19,166	26,880	22,947	19,370	18,645	17,685	14,663
1982	29,191	24,851	20,833	29,455	24,991	21,032	21,404	20,112	16,271
1983	30,680	26,131	22,058	31,058	26,349	22,290	20,829	19,689	17,164
1985	33,498	28,700	24,176	33,805	28,937	24,473	23,580	21,377	18,440
1986	36,076	30,483	25,823	36,418	30,733	26,162	24,519	22,291	19,297

NOTE: Salaries are for full-time instructional faculty on 9- or 10-month contracts.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Salaries and Fringe Benefits, 1971-72 and 1972-73; *Salaries and Tenure of Instructional Faculty in Institutions of Higher Education*, 1974-75; *Salaries, Tenure and Fringe Benefits of Full-Time Instructional Staff in Institutions of Higher Education, 1975-76*; "College Faculty Salaries 1976-86," *OERI Bulletin*, 1987; and *Digest of Education Statistics, 1987*.

Table 2:14–3 Index of average salaries in *current* dollars of full-time instructional faculty in institutions of higher education, by academic rank and selected other professional occupations in medium-sized and large private firms: Academic years ending 1972–1986

(Base year = academic year 1971–72)

Occupation	1972	1973	1974	1975	1976
Full professor	100	105	—	116	123
Associate professor	100	105	—	116	123
Assistant professor	100	105	—	116	122
Accountant	100	105	111	122	130
Chief accountant	100	106	113	123	131
Auditor	100	105	111	118	125
Attorney	100	106	112	121	128
Chemist	100	104	111	122	130
Engineer	100	105	111	120	128

Occupation	1977	1978	1979	1980	1981
Full professor	130	137	144	155	168
Associate professor	129	137	144	154	167
Assistant professor	128	135	143	152	165
Accountant	140	152	164	179	197
Chief accountant	145	157	169	188	206
Auditor	133	144	153	167	184
Attorney	135	148	161	176	193
Chemist	139	152	164	180	196
Engineer	136	149	161	177	196

Table 2:14–3 Index of average salaries in *current* dollars of full-time instructional faculty in institutions of higher education, by academic rank and selected other professional occupations in medium-sized and large private firms: Academic years ending 1972–1986—Continued

(Base year = academic year 1971–72)

Occupation	1982	1983	1984	1985	1986
Full professor	183	194	—	217	230
Associate professor	182	194	—	216	229
Assistant professor	180	192	—	215	229
Accountant	216	231	242	253	264
Chief accountant	229	239	252	268	282
Auditor	201	214	231	240	244
Attorney	215	231	242	257	274
Chemist	217	230	242	255	268
Engineer	216	232	244	256	267

—Faculty salaries are not available for 1974 and 1984.

NOTE: Faculty salaries are for the period of the 9- or 10-month contract and the salaries for other occupations are for March of the year.

SOURCE: U.S. Department of Education, National Center for Education Statistics, the HEGIS survey Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty, various years. U.S. Department of Labor, Bureau of Labor Statistics, National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1982 and March 1986.

Indicator 2:15

Table 2:15–1 Percent of new doctorates with definite employment plans in the United States who have commitments at colleges and universities, by field of study: Selected years of doctorate 1971–1987

Field of study [1]	1971	1973	1975	1977	1979
All fields [2]	69.3	65.0	60.4	58.8	55.1
Humanities and social/behavioral sciences	85.3	80.7	75.5	71.6	65.7
Humanities	94.6	93.4	89.4	87.4	82.5
Social and behavioral sciences	79.7	73.1	68.7	63.9	58.2
Natural and computer sciences and engineering	51.5	46.3	40.8	42.1	39.1
Natural sciences	61.3	56.9	48.9	50.0	44.5
Life sciences	69.9	64.5	59.5	61.5	60.1
Physical sciences	41.9	38.0	25.8	29.8	22.2
Mathematics	85.7	77.6	74.3	72.6	70.8
Computer sciences and engineering	31.3	25.3	24.9	27.0	29.1
Computer and information sciences	—	—	—	50.0	53.2
Engineering	31.3	25.3	24.9	26.7	26.6
Technical/professional	69.6	63.9	60.6	58.7	57.5
Education	67.6	60.2	56.4	54.5	52.6
Other technical/professional	78.4	77.3	75.1	72.8	72.2

Field of study [1]	1981	1983	1985	1987
All fields [2]	51.4	51.8	50.6	52.0
Humanities and social/behavioral sciences	61.8	62.6	61.2	61.4
Humanities	82.3	84.6	81.9	84.8
Social and behavioral sciences	52.8	52.6	51.3	49.3
Natural and computer sciences and engineering	36.3	39.7	38.7	39.1
Natural sciences	39.3	41.3	42.0	40.3
Life sciences	54.8	51.3	51.9	48.4
Physical sciences	16.8	23.1	23.4	24.4
Mathematics	70.3	77.2	76.4	75.4
Computer sciences and engineering	30.6	36.7	33.2	37.6
Computer and information sciences	52.7	53.6	54.2	68.5
Engineering	28.0	34.4	30.6	32.1
Technical/professional	53.3	51.6	51.1	53.6
Education	48.2	45.0	42.8	45.0
Other technical/professional	69.3	69.9	72.2	73.0

—Data not collected as a separate field of study.

[1] Field classification differs slightly from that used in other indicators in this volume. One such difference is the inclusion of agriculture and agricultural sciences with the life sciences rather than with technical/professional fields.

[2] Includes those for whom field of study is unknown.

NOTE: Only doctorates with definite employment commitments in the United States are reported here. A "definite commitment" is defined as a signed contract, acceptance of a formal offer, etc.

SOURCE: National Research Council, Doctorate Records File (based on the Survey of Earned Doctorates, various years), special tabulations.

Table 2:15–2 Number of new doctorates with definite employment plans in the United States who have commitments at colleges and universities, by field of study: Selected years of doctorate 1971–1987

Field of study [1]	1971	1973	1975	1977	1979
All fields [2]	12,306	11,626	10,134	8,896	8,133
Humanities and social/behavioral sciences	5,468	5,349	4,524	3,756	3,237
Humanities	2,259	2,306	1,753	1,491	1,257
Social and behavioral sciences	3,209	3,043	2,771	2,265	1,980
Natural and computer sciences and engineering	3,018	2,392	1,894	1,680	1,636
Natural sciences	2,422	1,951	1,505	1,314	1,210
Life sciences	1,097	963	752	640	649
Physical sciences	686	495	317	334	273
Mathematics	639	493	436	340	288
Computer sciences and engineering	596	441	389	366	426
Computer and information sciences	—	—	—	8	74
Engineering	596	441	389	358	352
Technical/professional	3,802	3,875	3,710	3,454	3,251
Education	2,998	2,860	2,685	2,462	2,237
Other technical/professional	804	1,015	1,025	992	1,014

Field of study [1]	1981	1983	1985	1987
All fields [2]	7,725	7,188	6,786	6,706
Humanities and social/behavioral sciences	3,084	2,808	2,565	2,523
Humanities	1,256	1,183	1,107	1,170
Social and behavioral sciences	1,828	1,625	1,458	1,353
Natural and computer sciences and engineering	1,537	1,548	1,530	1,426
Natural sciences	1,097	1,035	1,038	834
Life sciences	604	510	522	396
Physical sciences	218	274	267	242
Mathematics	275	251	249	196
Computer sciences and engineering	440	513	492	592
Computer and information sciences	79	90	90	161
Engineering	361	423	402	431
Technical/professional	3,090	2,827	2,682	2,738
Education	2,115	1,813	1,608	1,591
Other technical/professional	975	1,014	1,074	1,147

—Data not collected as a separate field of study.

[1] Field classification differs slightly from that used in other indicators in this volume. One such difference is the inclusion of agriculture and agricultural sciences with the life sciences rather than with technical/professional fields.

[2] Includes those for whom field of study is unknown.

NOTE: Only doctorates with definite employment commitments in the United States are reported here. A "definite commitment" is defined as a signed contract, acceptance of a formal offer, etc.

SOURCE: National Research Council, Doctorate Records File (based on the Survey of Earned Doctorates, various years), special tabulations.

Table 2:15–3 Number of new doctorates, by postgraduate plans: Selected years of doctorate 1971–1987

Year of doctorate	Total number of doctorates [1]	Doctorates with definite postgraduation commitments				
		Total with plans [2]	In the United States [3]		Outside United States	Location unknown
			Study	Employment		
1971	31,867	23,867	3,119	17,759	2,176	687
1973	33,755	24,091	3,335	17,881	2,182	573
1975	32,951	22,924	3,344	16,767	2,077	558
1977	31,716	21,345	3,438	15,128	1,913	716
1979	31,237	21,411	3,711	14,770	1,927	865
1981	31,353	21,888	3,700	15,036	1,981	1,122
1983	31,216	21,163	3,797	13,873	2,086	1,380
1985	31,211	20,896	3,990	13,393	2,087	1,376
1987	32,278	21,240	4,606	12,891	2,075	1,592

[1] Due to differences in survey design, the total number of doctorates reported by the Survey of Earned Doctorates differs from that obtained from the Department of Education's HEGIS survey of Degrees and Other Formal Awards Conferred.

[2] Includes those with unknown type of plans in the U.S.

[3] Those with unknown type of plans are not shown.

NOTE: A "definite commitment" is defined as a signed contract, acceptance of a formal offer, etc.

SOURCE: National Science Foundation, *Science and Engineering Doctorates: 1960–86; Early Release of Summary Statistics on Science and Engineering Doctorates 1987*; and unpublished tabulations.

Table 2:15–4 Percent of new doctorates with definite employment plans in the United States with commitments in employment sectors other than higher education, by selected field of study: Selected years of doctorate 1971–1987

Field of study [1] and employment sector [2]	1971	1973	1975	1977	1979
All fields					
Elementary/secondary school	5.5	7.6	8.3	8.9	8.4
Nonprofit organization	3.3	4.5	5.3	6.0	6.6
Industry	11.4	10.8	12.4	12.0	15.5
Government	9.8	11.0	12.4	12.9	12.7
Social and behavioral sciences					
Elementary/secondary school	1.8	2.5	2.5	2.9	2.4
Nonprofit organization	4.6	7.1	8.1	10.3	12.0
Industry	2.2	3.3	3.8	4.5	7.4
Government	10.4	12.1	14.8	16.0	17.0
Natural sciences					
Elementary/secondary school	0.4	0.8	0.7	0.6	0.4
Nonprofit organization	2.4	3.0	3.2	2.2	3.1
Industry	22.6	21.8	30.0	29.8	36.8
Government	12.7	16.5	16.5	16.5	14.3
Education					
Elementary/secondary school	19.2	24.4	25.1	25.6	25.1
Nonprofit organization	3.5	4.2	4.9	5.4	5.8
Industry	0.9	1.0	1.6	1.5	2.6
Government	7.9	9.3	11.1	11.7	12.2

Table 2:15–4 Percent of new doctorates with definite employment plans in the United States with commitments in employment sectors other than higher education, by selected field of study: Selected years of doctorate 1971–1987—Continued

Field of study [1] and employment sector [2]	1981	1983	1985	1987
All fields				
Elementary/secondary school	9.8	10.3	10.0	10.2
Nonprofit organization	6.7	7.2	7.6	7.6
Industry	17.4	17.3	18.0	17.1
Government	12.5	10.8	11.3	10.4
Social and behavioral sciences				
Elementary/secondary school	3.4	3.5	3.6	3.5
Nonprofit organization	12.7	14.1	15.3	15.6
Industry	8.5	9.3	9.7	11.0
Government	18.4	15.1	15.1	14.0
Natural sciences				
Elementary/secondary school	0.5	0.5	0.3	0.2
Nonprofit organization	2.1	2.6	2.4	3.4
Industry	43.5	41.3	41.7	41.0
Government	13.5	13.3	12.7	14.1
Education				
Elementary/secondary school	28.9	31.0	31.1	32.7
Nonprofit organization	5.7	6.6	6.6	6.9
Industry	3.0	4.1	4.2	3.1
Government	12.2	10.4	12.8	9.9

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[1] Field of study classification differs slightly from that used in other indicators in this volume. One such difference is the inclusion of agriculture and the agricultural sciences with life sciences rather than with other technical/professional.

[2] Self-employment and other or unknown employment sector are not shown.

NOTE: Only doctorates with definite employment commitments in the United States are reported here. A "definite commitment" is defined as a signed contract, acceptance of a formal offer, etc..

SOURCE: National Research Council, Doctorate Records File (based on the Survey of Earned Doctorates, various years), special tabulations.

Indicator 2:16

Table 2:16–1 Enrollments in institutions of higher education, by type and control of institution: Selected years 1970–1988

Fall of year	All institutions	Total		Public		Private	
		Public	Private	4-year	2-year	4-year	2-year
				(In thousands)			
1970	8,581	6,428	2,153	4,326	2,102	2,032	121
1972	9,215	7,071	2,144	4,430	2,641	2,029	115
1974	10,224	7,989	2,235	4,704	3,285	2,117	119
1976	11,012	8,653	2,359	4,901	3,752	2,227	132
1978	11,260	8,786	2,475	4,912	3,874	2,320	155
1980	12,097	9,457	2,640	5,128	4,329	2,442	197
1982	12,426	9,696	2,730	5,176	4,520	2,478	252
1983	12,465	9,683	2,782	5,223	4,459	2,518	264
1984	12,242	9,477	2,765	5,198	4,279	2,513	251
1985	12,247	9,479	2,768	5,210	4,270	2,506	262
1986	12,505	9,717	2,790	5,301	4,414	2,524	266
1987 [1]	12,768	9,975	2,793	5,434	4,541	2,558	235
1988 [2]	12,849	10,045	2,804	5,478	4,567	2,550	—

—Not available.

[1] Preliminary data

[2] Estimates based on a sample survey.

NOTE: Detail may not add to totals due to rounding. Some data revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics*, forthcoming; "National Estimates of Higher Education Statistics," *Early National Estimates*, 1988.

Table 2:17–1 Trends in total enrollment of part-time students, women, students 25 years old or older, and graduate and professional students in institutions of higher education: Selected years 1970–1988

Fall	Total	Part-time	Women	25 years or older [1]	Graduate and professional
	(In thousands)	Percentage of total enrollment			
1970	8,581	32.2	41.2	—	14.1
1972	9,215	34.1	43.1	28.0	13.8
1974	10,224	37.7	45.0	32.8	13.9
1976	11,012	39.0	47.2	33.0	14.4
1978	11,260	40.8	49.9	34.8	14.0
1980	12,097	41.3	51.4	34.3	13.4
1982	12,426	41.9	51.5	35.6	12.9
1984	12,242	42.0	52.1	36.2	13.3
1986 [2]	12,505	43.1	52.9	38.6	13.6
1987 [3]	12,544	42.5	53.1	—	13.1
1988 [4]	12,849	42.6	53.7	—	13.3

—Not available.

[1] Data on the percentage of students aged 25 or older come from the Bureau of the Census. Years 1972 to 1980 are controlled to the 1970 census base. Years 1981 to 1987 are controlled to the 1980 census base.

[2] 1986 data for "25 years or older" and "Graduate and professional" only contain preliminary data.

[3] Preliminary data.

[4] Estimated

NOTE: Some data revised from previously published figures.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 1988* (based on a NCES survey Fall Enrollments in Colleges and Universities, various years); "National Estimates of Higher Education Statistics: 1988", *Early Estimates*, 1988. U.S. Department of Commerce, Bureau of the Census, "School Enrollments—Social and Economic Characteristics of Students," October, various years, *Current Population Reports*, Series P-20; and unpublished tabulations.

Table 2:17–2 Standard errors for percentage of students 25 years old or older enrolled in a higher education institution: Selected years, 1972–1986, (table 2:17–1)

Fall	Percent of students 25 years old or older
1972	0.67
1974	0.67
1976	0.63
1978	0.64
1980	0.68
1982	0.66
1984	0.66
1986	0.63

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollments—Social and Economic Characteristics of Students, October [various years]," *Current Population Reports,* Series P-20; and unpublished tabulations.

Table 2:18–1 Population and college enrollment, by selected age groups: 1980–1986

(Numbers in thousands)

Year	Total college enrollment *	Population 18 to 24			Population 25 and older		
		Total	Enrolled in college		Total	Enrolled in college	
			Number	Percent		Number	Percent
1980	11,387	29,252	7,226	24.7	132,730	3,910	2.9
1981	12,127	29,307	7,575	25.8	135,417	4,321	3.2
1982	12,308	29,162	7,678	26.3	138,223	4,377	3.2
1983	12,320	28,847	7,477	25.9	140,970	4,583	3.3
1984	12,304	28,323	7,591	26.8	143,671	4,460	3.1
1985	12,524	27,707	7,537	27.2	146,341	4,724	3.2
1986	12,401	26,976	7,397	27.4	149,115	4,788	3.2

* Includes a few students between the ages of 14 and 17.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Estimates of the Population of the United States, by Age, Sex, Race: 1980 to 1986," *Current Population Reports*, Series P-25, No. 1000; "School Enrollments—Social and Economic Characteristics of Students: October 1983," *Current Population Reports*, Series P-20, No. 413; and unpublished tabulations.

Table 2:18–2 Standard errors for college enrollment by selected age group and population of 18- to 24-year-olds: 1980-1986 (table 2:18–1)

(Numbers in thousands)

Year	Population 18 to 24			Population 25 and older		
	Total	Enrolled in college		Total	Enrolled in college	
		Number	Percent of total		Number	Percent of total
1980	—	115	0.36	—	87	0.07
1981	—	126	0.39	—	97	0.07
1982	—	127	0.39	—	98	0.07
1983	—	125	0.39	—	100	0.07
1984	—	126	0.40	—	99	0.07
1985	—	126	0.41	—	101	0.07
1986	—	125	0.41	—	102	0.07

—Not applicable. These estimates are not considered samples but adjustments to 1980 Census data. Therefore, no standard errors are included.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollments—Social and Economic Characteristics of Students, October [various years]," *Current Population Reports*, Series P-20; and unpublished tabulations.

Indicator 2:19

Table 2:19–1 Participation rates of 18-to 24-year-olds in higher education, by race and ethnicity: 1970–1986

Fall	White	Black	Hispanic *
	(Percent enrolled)		
1970	27.1	15.5	—
1971	27.2	18.2	—
1972	26.4	18.1	13.4
1973	25.0	16.0	16.0
1974	25.2	17.9	18.1
1975	26.9	20.7	20.4
1976	27.1	22.6	19.9
1977	26.5	21.3	17.2
1978	25.7	20.1	15.2
1979	25.6	19.8	16.6
1980	26.2	19.2	16.1
1981	26.7	19.9	16.7
1982	27.2	19.8	16.8
1983	27.0	19.2	17.2
1984	28.0	20.4	17.9
1985	28.7	19.7	16.9
1986	28.3	21.8	17.6

—Not available.

* Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollments—Social and Economic Characteristics of Students, October [various years]," *Current Population Reports*, Series P-20.

Table 2:19–2 Standard errors for participation rates of 18- to 24-year-olds in higher education, by race and ethnicity: 1970–1986 (table 2:19–1)

Fall	White	Black	Hispanic*
1970	0.5	1.1	—
1971	0.4	1.1	—
1972	0.4	1.1	1.4
1973	0.4	1.0	1.4
1974	0.4	1.0	1.5
1975	0.4	1.1	1.6
1976	0.4	1.1	1.5
1977	0.4	1.1	1.4
1978	0.4	1.0	1.3
1979	0.4	1.0	1.3
1980	0.4	1.1	1.3
1981	0.4	1.2	1.3
1982	0.4	1.0	1.4
1983	0.4	1.0	1.4
1984	0.4	1.0	1.3
1985	0.5	1.0	1.4
1986	0.5	1.1	1.2

—Not available.

*Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, "School Enrollments—Social and Economic Characteristics of Students, October, [various years]," *Current Population Reports*, Series P-20.

B. Sources of Data

Sources of Data

General Information

The information presented in this report was obtained from many sources, including Federal and State agencies, private research organizations, and professional associations. The data were collected using many research methods including surveys of a universe (such as all colleges) or of a sample, compilations of administrative records, and statistical projections. Users of *The Condition of Education* should take particular care when comparing data from different sources. Differences in procedures, timing, phrasing of questions, interviewer training, and so forth mean that the results from the different NCES sources are not strictly comparable. Following the general discussion of data accuracy below, descriptions of the information sources and data collection methods are presented, grouped by sponsoring organization. More extensive documentation of one survey's procedures than of another's does not imply more problems with the data, only that more information is available.

Unless otherwise noted, all comparisons cited in the text were tested for significance using t-tests and are significant at the 0.05 level. When other tests were used, they are described in the supplemental note for the indicator.

The accuracy of any statistic is determined by the joint effects of sampling and nonsampling errors. Estimates based on a sample will differ somewhat from the figures that would have been obtained if a complete census had been taken using the same survey instruments, instructions, and procedures. In addition to such sampling errors, all surveys, both universe and sample, are subject to design, reporting, and processing errors and errors due to nonresponse. To the extent possible, these nonsampling errors are kept to a minimum by methods built into the survey procedures. In general, however, the effects of nonsampling errors are more difficult to gauge than those produced by sampling variability.

The estimated standard error of a statistic is a measure of the variation due to sampling and can be used to examine the precision obtained in a particular sample. The sample estimate and an estimate of its standard error permit the construction of interval estimates with prescribed confidence that the interval includes the average result of all possible samples. If all possible samples were selected, each of these surveyed under essentially the same conditions, and an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average value from all possible samples; 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples; and 99 percent of all intervals from 2.5 standard errors below the estimate to 2.5 standard errors above the estimate would include the average value of all possible samples.

These intervals are called 90 percent, 95 percent, and 99 percent confidence intervals, respectively.

To illustrate this further, consider table 1:1-3 for estimates of standard errors from NAEP reading assessments. For an estimate of the average reading proficiency (on a 0 to 100 scale) of 38.1 for all students in grade 3, the table shows a standard error of 0.2. Therefore, a 95 percent confidence interval from 37.7 to 38.5 (38.1 ± 2 x .2) can be constructed. If this procedure were followed for every possible sample, about 95 percent of the intervals would include the average for all possible samples.

Standard errors can help assess how valid a comparison between two estimates might be. The standard error of a difference between two sample estimates is approximately equal to the square root of the sum of the squared standard errors of the estimates. The standard error (se) of the difference between sample estimate "a" and sample estimate "b" (if "a" and "b" are approximately independent) is:

$$se_{a,b} = \sqrt{se_a^2 + se_b^2}$$

It should be noted that most of the standard errors presented in the indicators and in the original documents are approximations. That is, to derive estimates of standard errors that would be applicable to a wide variety of items and could be prepared at a moderate cost, a number of approximations were required. As a result, most of the standard errors presented provide a general order of magnitude rather than the exact standard error for any specific item.

The preceding discussion on sampling variability was directed toward a situation concerning one or two estimates. Determining the accuracy of statistical projections is more difficult. In general, the further away the projection date is from the date of the actual data being used for the projection, the greater the possible error in the projection. If for instance annual data from 1970 to 1987 are being used to project enrollment in institutions of higher education, the further beyond 1987 one projects, the more variability in the projection. One will be less sure of the 1992 enrollment projection than of the 1988 projection. A detailed discussion of the projections methodology is contained in *Projections of Education Statistics* to 1997-98 (National Center for Education Statistics).

Both universe and sample surveys are subject to nonsampling errors. Nonsampling errors are of two kinds—random and nonrandom. Random nonsampling errors may arise when respondents or interviewers interpret questions differently, when respondents must estimate values, or when coders, keyers, and other processors handle answers differently. Nonrandom, nonsampling errors result from total nonresponse (no usable data obtained for a sampled unit), partial or item nonresponse (only a portion of a response may be usable), inability or unwillingness on the part of respondents to provide correct information, difficulty interpreting questions, mistakes in recording or keying data, errors of collection or processing, and overcoverage or undercoverage of the target universe. Random nonresponse errors usually, but not always, result in an understatement of sampling errors and thus an overstatement of the precision of survey estimates. Since estimating the magnitude of nonsampling errors would require special experiments or access to independent data, these magnitudes are seldom available.

To compensate for suspected nonrandom errors, adjustments of the sample estimates are often made. For example, adjustments are frequently made for nonresponse, both total and partial. An adjustment made for either type of nonresponse is often referred to as an imputation or substitution of the "average" questionnaire response for the nonresponse. Imputations are usually made separately within various groups of sample members that have similar survey characteristics. Imputation for item nonresponse is usually made by substituting for a missing item the response to that item of a respondent having characteristics that are similar to those of the nonrespondent.

Sources of Data

1. Federal Agency Sources

Bureau of the Census
U.S. Department of Commerce

Current Population Survey

Current estimates of school enrollment and social and economic characteristics of students are based on data collected in the Census Bureau's monthly household survey of about 60,000 households, Current Population Survey (CPS). The CPS consists of 729 sample areas made up of 1,973 counties, independent cities, and minor civil divisions throughout the 50 States and the District of Columbia. The current sample was selected from 1980 census files and is periodically updated to reflect new housing construction.

The primary function of the monthly CPS is to collect data on labor force participation of the civilian noninstitutional population (it excludes military personnel and inmates of institutions). In October of each year, questions on school enrollment by grade and other school characteristics are asked about each member of the household. A report on the educational attainment of the population is produced from data gathered in March of each year when supplemental questions on personal income are asked.

The estimation procedure employed for the monthly CPS data involves inflating weighted sample results to independent estimates for the total civilian, noninstitutional population by age, gender, race, and Hispanic origin. These independent estimates are derived from statistics from decennial censuses of the population; statistics on births, deaths, and immigration and emigration; and statistics on the strength of the Armed Forces. Generalized standard error tables are provided in the *Current Population Reports.* The data are subject to both nonsampling and sampling errors.

School Enrollment. Each October, the Current Population Survey (CPS) includes supplemental questions on the enrollment status of the population aged 3 years old and older. Annual reports documenting school enrollment of the population have been produced by the Bureau of the Census since 1946. The latest report is *Current Population Reports,* Series P-20, No. 429, "School Enrollment — Social and Economic Characteristics of Students: October 1986." All sample surveys are subject to sampling and nonsampling error. The main sources of nonsampling error in the supplement are those inherent in any household survey. When a household respondent reports for all individuals in the household, is that person knowledgable about the grade or level of school, type of school, or full-time status? In addition, some analysts believe social acceptability of response causes biased reporting, such as reluctance to report lack of a high school diploma; some dismiss it. Household-reported data may not be consistent with administrative data, because definitions may not be the same. An additional source of variation in statistics reported may be a change in the survey universe over time. For example, a significantly larger proportion of young men were members of the Armed Forces in the late 1960's and early 1970's, than before or after and, therefore, were not in the CPS universe. That caused a short-term increase in the enrollment rate of young men, which was greater than the increase in numbers of enrollees would indicate. Other events may similarly affect survey data. The user must be mindful of external events as well as the character of the population being measured when describing survey trends.

An advantage of household survey data over administrative data is the availability of demographic, social, and economic data for the student and family that is not available in administrative data. Beginning with data for October 1981, tabulations have been controlled to the 1980 census. Estimates for earlier years were controlled to earlier censuses.

Educational Attainment. Data on years of school completed are derived from two questions on the Current Population Survey (CPS) instrument. Biennial reports documenting educational attainment are produced by the Bureau of the Census using March CPS data. The latest report is *Current Population Reports,* Series P–20, No. 428, "Educational Attainment in the United States, March 1987 and 1986."

The usual constraints on use of household survey data apply. Reliability of response may depend on whether a proxy respondent was used, the recency and importance of the event, or the number and clarity of response categories. There is some evidence that years or school completed in the CPS may not measure completion of degrees as clearly as they once did. The number of persons who have completed 4 years of college has been increasing more rapidly than the number of bachelor's degrees added each year would suggest. While the number of years completed is not deteriorating in quality (that is, respondents are not exaggerating the number of years), more students than in the past are taking more than 4 academic years to complete a bachelor's degree. Also, although interviewers are instructed to count receiving a high school diploma by means of passing a GED exam as completion of the 12th grade, as the number of persons who have received a diploma in this way has increased, the number counted appropriately may not have kept pace. The 1990 Census of Population will contain a question on highest degree received rather than relying solely on a "years of school completed" item.

Beginning with the data for March 1980, tabulations have been controlled to the 1980 census. Estimates for earlier years were controlled to earlier censuses.

Questions concerning the CPS may be directed to

Education and Social Stratification Branch
Population Division
Bureau of the Census

U.S. Department of Commerce
Washington, DC 20233

Bureau of Labor Statistics
U.S. Department of Labor

National Survey of Professional, Administrative, Technical, and Clerical Pay (PATC)

Each year, starting in 1960, this survey has collected data on the annual salaries of selected professional, administrative, technical, and clerical occupations in private industry. Its purpose is to gather information on private sector salaries for use in assessing Federal pay levels.

The sample consists of private establishments in the United States, except Alaska and Hawaii, engaged in the following industries: mining; construction; manufacturing; transportation, communications, electric, gas, and sanitary services; wholesale trade; retail trade; finance, insurance, and real estate; and services. Before 1986, the sample was restricted to establishments employing a minimum of 100–250 workers. Starting with the 1986 survey, the minimum was lowered to 50 workers. The data reported in *The Condition of Education* are limited to establishments meeting the pre-1986 minimum.

If data are not provided by a sample member, the weights of responding sample establishments are increased to adjust for the missing data. The weights for establishments that are out of business or outside the scope of the survey are changed to zero. In the March 1986 survey, salary data were not available from 13 percent of the sample establishments. An additional 6 percent of the sample establishments were either out of business or outside the scope of the survey.

Employees are classified by occupation and work level. Salaries reported for these occupations are those paid to full-time employees for standard work schedules, that is, the salary corresponding to the employee's normal work schedule excluding overtime hours and premium pay for work on weekends, holidays, and late shifts. The average salary for a specific occupational level is obtained by dividing total wages for that level by the corresponding total employment. Year-to-year changes in average salaries reflect not only general salary increases and merit or other increases in the same work level category, but also other factors such as employee turnover, expansions or contractions in the work force, and changes in staffing patterns within establishments with different salary levels.

The survey is subject to both sampling and nonsampling errors. Further information on this survey can be obtained from *National Survey of Professional, Administrative, Technical, and Clerical Pay* (various years), published by the Bureau of Labor Statistics, or by contacting

Branch of White Collar Salary Surveys

Division of Occupational Pay and Benefit Levels
Bureau of Labor Statistics
441 G Street NW (Room 1285)
Washington, DC 20212

National Center for Education Statistics
U.S. Department of Education

Common Core of Data

The National Center for Education Statistics (NCES) uses the Common Core of Data (CCD) survey to acquire and maintain statistical data on the 50 States, the District of Columbia, and the outlying areas from the universe of State-level education agencies. Information about staff and students is collected annually at the school, LEA (local education agency or school district), and State levels. Information about revenues and expenditures is also collected at the State level.

Data are collected for a particular school year (July 1 through June 30) via survey instruments sent to the States by October 15 of the subsequent school year. States have 2 years in which to modify the data originally submitted.

Since the CCD is a universe survey, the CCD information presented in this edition of *The Condition of Education* is not subject to sampling error. However, nonsampling error could come from two sources: nonreturn and inaccurate reporting. Almost all of the States submit the six CCD survey instruments each year, but there are many delays in submitting data and the submissions are sometimes incomplete.

Understandably, when 57 education agencies compile and submit data for over 85,000 public schools and approximately 15,800 local school districts, misreporting can occur. Typically, this results from varying interpretations of NCES definitions and differing recordkeeping systems. NCES attempts to minimize these errors by working closely with the Council of Chief State School Officers (CCSSO) and its Committee on Evaluation and Information Systems (CEIS).

The State education agencies report data to NCES from data collected and edited in the regular reporting cycles for which NCES reimburses them. NCES encourages the agencies to incorporate into their own survey systems the NCES items they do not already collect so that those items will also be available for the subsequent CCD survey. Over time this has meant fewer missing data cells in each State's response, reducing the need to impute data.

NCES subjects data from the education agencies to a comprehensive edit. Where data are determined to be inconsistent, missing, or out of range, NCES contacts the education agencies for verification. NCES-prepared State summary forms are returned to the State education agencies for verification. States are also given an opportunity to revise their State-level aggregates from the previous survey cycle.

Questions concerning the Common Core of Data can be directed to

George Wade
Elementary and Secondary Education
Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5651

Higher Education General Information Survey

The Higher Education General Information Survey (HEGIS) is a coordinated effort administered by NCES to acquire and maintain statistical data on the characteristics and operations of institutions of higher education. Developed in 1966, HEGIS is an annual universe survey of institutions listed in the latest NCES *Education Directory, Colleges and Universities.*

The information presented in this report draws on HEGIS surveys which solicit information concerning institutional characteristics, faculty salaries, finances, enrollment, and degrees. Since these surveys cover all institutions in the universe, the data presented are not subject to sampling error. However they are subject to nonsampling error, the sources of which vary with the survey instrument. Each survey will, therefore, be discussed separately. Information concerning the nonsampling error of the enrollment and degrees surveys draws extensively on the "HEGIS Post-Survey Validation Study" conducted in 1979.

Institutional Characteristics of Colleges and Universities. This survey provides the basis for the universe of institutions presented in the *Education Directory, Colleges and Universities,* and it is used in all other HEGIS data collection activities. Institutions that offer at least a 1-year program of college-level studies leading toward a degree and that meet certain accreditation criteria comprise the universe. In the fall, institutions included in the *Directory* the previous year receive a computer printout of their information to update. Institutions not previously included and that have applied for Directory listing are sent a questionnaire. All institutions reported are certified as eligible to be listed by the Division of Eligibility and Agency Evaluation within the U.S. Department of Education.

Fall Enrollment in Colleges and Universities. This survey has been part of the HEGIS series since its development. The enrollment survey does not appear to suffer significantly from problems associated with nonresponse: the 1985 response rate was 92 percent. Major sources of nonsampling error for this survey are classification problems, the unavailability of needed data, interpretation of definitions, the survey due date, and operational errors. Of these, the classification of students appears to be the main source of error. Institutions have problems in correctly classifying first-time freshmen, other first-time students, and unclassified students for both full-time and part-time categories. These problems occur most often at 2-year institutions (both private and public) and private 4-year institutions. In 1977–78, the classification problem led to an estimated overcount of 11,000 full-time students and an undercount of 19,000 part-time students. Although the ratio of error to the grand total was quite small (less than 1 percent), the percentage of errors was as high as 5 percent for detailed student levels and even higher at certain aggregation levels.

Salaries, Tenure, and Fringe Benefits of Full-Time Instructional Faculty. This survey has been conducted every year since 1966, except for 1973–74. Although the survey form has changed a number of times during these years, only comparable data are presented in the report. The data are collected from the colleges and universities in a summary fashion.

This survey differs from other HEGIS surveys in that imputations are not made for nonrespondents. Thus, there is some possibility that the salary averages presented in this report may differ from the results of a complete enumeration of all colleges and universities. The response rate for the 1984–85 survey was 86.3 percent. The response rate for public colleges was substantially higher than the response rate for private colleges. It is probable that the public colleges' salary data are more accurate than the data for private colleges. Other sources of nonsampling error include computational errors and misclassification in reporting and processing. NCES checks individual colleges' data for internal and longitudinal consistency and contacts the colleges to check inconsistent data.

Degrees and Other Formal Awards. This survey has been part of the HEGIS series since its development. However, the degree classification taxonomy was revised in 1970–71 and 1982–83. Though information from survey years 1970–71 through 1981–82 is directly comparable, care must be taken if information before or after that period is included in any comparison.

Degrees-conferred trend tables arranged by the 1982–83 classification have been added to *The Condition of Education* to provide consistent data from 1970–71 to 1983–84. The nonresponse rate does not appear to be a significant source of nonsampling error for this survey. The return rate over the years has been extremely high, with the response rate for the 1983–84 survey at 95 percent. Because of the high return rate, nonsampling error caused by imputation would also be minimal.

The major sources of nonsampling error for this survey are differences between the HEGIS program taxonomy and taxonomies used by the colleges, classification of double majors and double degrees, operational problems, and survey timing. In the 1979 validation study, these sources of nonsampling error were found to contribute to an error rate of 0.3 percent overreporting of bachelor's degrees and 1.3 percent overreporting of master's degrees. The differences, however, varied greatly among fields. Over 50 percent of the fields selected for the validation study had no errors identified. Categories of fields that had large differences were business and management, education, engineering, letters, and psychology. It is also shown that differences in proportion to the published figures were less than 1 percent for most of the selected fields that had some errors. Exceptions to these were: master's and Ph.D. programs in labor and industrial relations (20 percent and 8 percent); bachelors's and master's programs in art education (3 percent and 4 percent); bachelor's and Ph.D. programs in business and commerce and in distributive education (5 percent and 9 percent); master's programs in philosophy (8 percent); and Ph.D. programs in psychology (11 percent).

Financial Statistics of Institutions of Higher Education. This survey has been part of the HEGIS series since its development. A number of changes were made in the financial survey instruments in 1975. In 1982 another change was made to include Pell Grants in Federal restricted grants and contracts revenues and restricted scholarships and fellowships expenditures. While these changes were significant, only comparable information on trends is presented in this report, except where noted. Finance tables for this publication have been adjusted by subtracting the Pell Grant amounts from the later data to maintain comparability with pre–1982 data.

Other possible sources of nonsampling error in the financial statistics are nonresponse, imputation, and misclassification. The response rate has been over 90 percent for most of the years reported. The response rate for the latest (fiscal year 1985) survey was 87.6 percent.

Two general methods of imputation have been used. If the prior year's data were available for a nonresponding institution, these data were inflated using the Higher Education Price Index and adjusted according to changes in enrollments. If no previous year's data were available, current data were used from peer institutions selected for location (State or region), control, level, and enrollment size of institution. For the most recent years reported, the imputation method did not include the adjustment for changes in enrollments, nor did it include new institutions that had never reported to HEGIS surveys. For the fiscal year 1985 survey, survey forms were mailed to 3,379 institutions. Reports were received from 2,959 institutions, and data for 370 institutions were estimated based on their fiscal year 1984 reports inflated by the Higher Education Price Index. The remaining 50 institutions were not imputed, because they had never responded to HEGIS surveys. It should be noted that the imputed current-fund expenditures of the nonrespondents have generally been less than 3 percent of the aggregate U.S. total.

To reduce reporting error, NCES uses national standards for reporting finance statistics. These standards are contained in *Colleges and University Business Administration: Administrative Services* (1974 edition), published by the National Association of College and University Business Officers; *Audits of Colleges and Universities* (as amended August 31, 1974), by the American Institute of Certified Public Accountants; and *HEGIS Financial Reporting Guide* (1980), by NCES. Wherever possible, definitions and formats in the survey form are consistent with those in these three accounting texts.

Questions concerning the surveys used as data sources for this report or other questions concerning HEGIS can be directed to

Postsecondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208–5652

International Assessment of Educational Progress

Five countries and four Canadian provinces (three provinces assessed two separate groups by language) participated in the International Assessment of Educational Progress (IAEP). Results of 12 student populations are presented in this report:

- Ireland;
- Korea;
- British Columbia, Canada;
- New Brunswick (English), Canada;
- New Brunswick (French), Canada;
- Ontario (English), Canada;
- Ontario (French), Canada;
- Quebec (English), Canada;
- Quebec (French), Canada;
- Spain;
- United Kingdom; and
- United States.

From each population, a representative sample of 13-year-olds was assessed in mathematics and science. Samples were drawn at random from about 100 schools selected with probability proportional to their size and included about 2,000 students. In the United States, the sample size was about 1,000 students from 200 schools. A total of approximately 24,000 students was surveyed. School participation rates ranged from 70 to 100 percent, and student participation rates from 73 to 98 percent.

Students were administered a 45-minute mathematics assessment consisting of 63 questions and a 45-minute science assessment made up of 60 questions. Items were selected from the total pool of 281 mathematics and 188 science questions used in the 1986 National Assessment of Educational Progress (NAEP). Questions were translated from English to French, Korean, and Spanish and then independently translated from the non-English language back to English. The back-translated versions were compared with the original English to ensure that the translations were accurate. Questions were also adapted for cultural differences. For example, units of measurement, the names of children, and species of plants or animals were changed to reflect local usage and environments. Students also answered questions about their school experiences and attitudes toward mathematics and science, and their teachers rated students' exposure to the concepts tested by the items. All countries and provinces followed standardized procedures and administered the assessments during February 1988.

The sampling designs for each of the populations may be described as stratified cluster samples. The participants, however, were free to design their surveys independently as long as certain specific rules were followed. The principal requirement was that their data be amenable to analysis as a paired cluster design, thus permitting the use of a jackknife procedure for the estimation of standard errors.

With two exceptions, all of the surveys followed the same two-stage sampling process. In the first stage, schools were selected with probabilities proportional to estimated size (number of 13-year-old students). At the second stage, subsamples of students were randomly drawn from within each selected school. Typically, about 100 schools were selected at the first stage and about 2,000 students at the second stage.

For further information about this survey contact

Gary W. Phillips
Elementary and Secondary Outcomes Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5653

National Assessment of Educational Progress

The National Assessment of Educational Progress (NAEP) is a Congressionally mandated study funded by the Office of Educational Research and Improvement, U.S. Department of Education. The overall goal of the project is to determine the Nation's progress in education. To accomplish this goal, a cross-sectional study was designed and initially implemented in 1969. Periodically, NAEP has gathered information about levels of educational achievement across the country. NAEP has surveyed the educational accomplishments of 9-,13-, and 17-year-old students, and occasionally young adults, in 10 learning areas. Different learning areas were assessed annually and, as of 1980–81, biennially. Most areas have been periodically reassessed in order to measure possible changes in education achievement.

The mathematics, reading, computer competency, and literature and U.S. history assessments presented in this publication were conducted by either the Education Commission of the States (1969–1983) or the Educational Testing Service (1983 to the present). NAEP in-school assessments were based on a deeply stratified three-stage sampling design to obtain a nationally representative sample by age and, beginning in 1983–84, by grade. The first stage of sampling entails defining and selecting primary sampling units (PSU's). For each age/grade level (3, 7, and 11), the second stage entails enumerating, stratifying, and randomly selecting schools, both public and private, within each PSU selected at the first stage. The third stage involves randomly selecting students within a school for participation in NAEP. Assessment exercises were administered to small groups of students by specially trained personnel.

Information from NAEP is subject to both nonsampling and sampling error. Two possible sources of nonsampling error are nonparticipation and faulty instrumentation. The effects of nonparticipation are in some ways reduced through oversampling, although this does not assess the bias of nonparticipants. Instrumentation nonsampling error includes whether the NAEP assessment instruments measure what is being taught, and in turn what is being learned by the students, or allow for ambiguous items or instructions or insufficient time limits.

For further information on NAEP, contact

Gary Phillips
Education Outcomes Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208–5653

1987 High School Transcript Study

Transcripts of 1987 high school graduates were compared with transcripts of 1982 high school graduates to describe changes in course taking across this 5-year period. The analyses were based on approximately 22,700 transcripts of 1987 graduates from the 1987 High School Transcript Study and 12,000 transcripts of 1982 graduates who participated in the High School and Beyond project. A brief description of each study is provided below.

The sample of schools for the 1987 High School Transcript Study (conducted by Westat, Inc., for the U.S. Department of Education, National Center for Education Statistics) consisted of a nationally representative sample of 471 eligible secondary schools selected for the 1986 NAEP evaluation of grade 11/age 17 students, of which 433 schools participated.

Transcript Study graduates were restricted to those who were in grade 11 in 1985–86. Further, because the methods of identifying and defining handicapped students were different in the two studies, and in order to make the two samples as comparable as possible, it was necessary to restrict the samples to those students whose records indicated they had not participated in a special education program.

In 1982, high school transcripts were collected for members of the High School and Beyond (HS&B) study's sophomore cohort (1982 high school graduates) who were selected to be in the second follow-up survey (about 12,000 transcripts). As in the 1987 High School Transcript Study, records were obtained from all types of high schools, public and private. Information from the transcripts, including specific courses taken, and grades and credits earned, were coded according to the Classification of Secondary School Courses coding system and were processed into a system of data files designed to be merged with HS&B questionnaire and test data files. Unlike the 1987 High School Transcript Study, some information was not coded, such as the identification of courses as remedial, regular, or advanced, as offered in a different location, or as designed for handicapped students. The data in both sets are subject to sampling and coding (nonsampling) errors.

Further information on this survey may be obtained from

Andrew Kolstad
Elementary and Secondary Outcomes Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5653

Projections of Education Statistics

Since 1964, NCES has published *Projections of Education Statistics*, projecting key statistics, including enrollments, instructional staff, graduates, and earned degrees for elementary and secondary schools and institutions of higher education. *Projections* includes several alternative projection series and a methodology section describing the techniques and assumptions used to prepare them. Data in this edition of *The Condition of Education* reflect the intermediate *Projection* series only.

Differences between the reported and projected values are almost inevitable. An evaluation of past projections reveals that, at the elementary and secondary level, projections of enrollment have been quite accurate: mean absolute percentage differences for enrollment were less than 1 percent for projections from 1 to 5 years into the future, while those for teachers were less than 4 percent. At the higher education level, projections of enrollment have been fairly accurate: mean absolute percentage differences were 5 percent or less for projections from 1 to 5 years into the future.

Since projections of time series are subject to errors both by the nature of statistics and the properties of projection methodologies, users are cautioned not to place too much confidence in the numerical values of the projections. Important but unforeseeable economic and social changes may lead to differences, particularly at the higher education level. These projections are to be considered as indicators of broad trends.

For further information about projection methodology and accuracy, contact

Debra E. Gerald
Crosscutting Education Statistics and Analysis Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208–5650

School Discipline Policies and Practices Survey

Data reported in this survey were collected by means of a mail survey with telephone followup between October 1986 and January 1987. The survey was performed using the Fast Response Survey System (FRSS). FRSS was established by NCES to collect quickly, and with minimum burden on respondents, small quantities of data needed for educational planning and policy. The survey was designed to obtain the views of a nationally representative sample of public elementary and secondary school teachers on discipline problems in schools and to replicate certain questions asked on previous surveys of teachers and administrators.

In fall 1986, a two-stage stratified national sample of 1,547 teachers was selected to represent 1.9 million regular public school classroom teachers in the United States. In the first stage, 850 elementary and secondary schools were selected from the NCES 1984–85 listing of public schools. Schools were stratified by level and metropolitan status and then sequenced by geographic region and enrollment. Within each stratum, the specified number of schools was selected with a probability proportional to the number of FTE teachers. At the next stage, an average of two teachers from each school was randomly selected by telephone from lists of teachers provided by the school. Questionnaires were mailed to the selected teachers in late October of 1986, and telephone followup continued through January of 1987. A 96 percent school participation rate and a 98 percent teacher participation rate were attained, for an overall response rate of 94 percent. Responses were adjusted for nonresponse and weighted to national totals.

Since the estimates were obtained from a sample of teachers, they are subject to sampling variability. Estimates of standard errors were computed using a jackknife replication technique.

The survey estimates are also subject to nonsampling error from such sources as differences in interpretation of the meaning of the questions by the respondents, differences related to the particular time the survey was conducted, or errors in sampling or data preparation. During the design of the survey and survey pretest, an effort was made to check for consistency of interpretation of questions and to eliminate ambiguous items. Manual and machine editing of the forms were conducted to check the data for accuracy and consistency. For those items that involved inconsistencies or omissions, clarification was obtained by telephone.

For more information about this survey contact

Helen Ashwick
Elementary and Secondary Education Statistics Division
National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208–5651

National Institute on Drug Abuse
U.S. Department of Health and Human Services

The National Institute on Drug Abuse is the primary supporter of the long-term study entitled "Monitoring the Future: A Continuing Study of the Lifestyles and Values of Youth," conducted at the University of Michigan, Institute for Social Research. One component of the study deals with student drug abuse. Results of a national sample survey have been published annually since 1975. Approximately 125 to 135 schools have participated each year. With the exception of 1975 when about 9,400 students participated in the survey, more than 15,000 students have participated in the survey annually. For the class of 1987, about 16,300 students responded to the survey. Over the years, the response rate has varied from 77 to 84 percent.

The data in this survey represent only high school seniors. Understandably, there will be some reluctance to admit illegal activities. Also, students who were out of school on the day of the survey were nonrespondents. The survey did not include high school dropouts. The inclusion of these two groups would tend to increase the proportion of individuals who had used drugs. A 1983 study found that the inclusion of the absentees could increase some of the drug usage estimates by as much as 2.7 percent. (Details of this study and its methodology were published in *Drug Use Among American High School Students, College Students, and Other Young Adults,* by Lloyd D. Johnston, Patrick M. O'Malley, and Jerald G. Bachman, which is available from the National Clearinghouse on Drug Abuse Information, 5600 Fishers Lane, Rockville, MD 20857.)

Further information on this survey may be obtained from

National Institute on Drug Abuse
Division of Epidemiology and
Statistical Analysis
5600 Fishers Lane
Rockville, MD 20857

National Science Foundation

Federal Obligations to Colleges and Universities and Selected Nonprofit Institutions

Each year the National Science Foundation collects data on obligations to colleges and universities from Federal agencies. Obligations differ from expenditures in that funds obligated during one fiscal year may be spent by the recipient in later years. The fiscal year 1983 data were submitted by 15 Federal agencies. Obligation amounts include direct Federal support, so that amounts subcontracted to other institutions are included. Those funds received through subcontracts are excluded. Also excluded from the data are certain types of financial assistance such as the Department of Education's Guaranteed Student Loan Program and obligations to the U.S. service academies. For purposes of tabulations in this publication, university administered federally funded research and development centers (FFRDCs') have been included in appropriate State totals.

The universe of academic institutions for this survey is based on the Higher Education General Information Survey conducted by the National Center for Education Statistics (see above). Institutions without Federal support were excluded and some systems were combined into single reporting units.

Further information on this survey may be obtained from *Federal Support to Universities, Colleges, and Selected Nonprofit Institutions,* published by the National Science Foundation, or by contacting

Universities and Nonprofit Institutions
Study Group
Division of Science Resources Studies
National Science Foundation, Room L-602
Washington, DC 20550

Scientific and Engineering Expenditures at Universities and Colleges Survey

The National Science Foundation's Survey of Scientific and and Engineering Expenditures at Universities and Colleges originated in 1954 and has been conducted annually since 1972. The population surveyed in most years has consisted of the 500 to 600 universities and colleges that grant a graduate science or engineering degree and/or annually perform at least $50,000 in separately budgeted R&D, defined as current fund expenditures designed to produce specific research outcomes and funded either by an external agency to an institution or separately budgeted by an internal institution unit. The institutions included in this survey population expend over 95 percent of the Nation's academic R&D funds. In addition, approximately 17 university administered federally funded research and development centers (FFRDCs) that are engaged in basic or applied research, development, or management of R&D activities are surveyed.

Since 1984 this survey has been conducted as a sample survey consisting of two strata: a certainty stratum including all doctorate-granting institutions, all historically black colleges and universities with R&D, and all university administered FFRDCs; and a probability stratum including a random sample of all nondoctorate-granting institutions that perform significant levels of research and development.

Further information on this survey may be obtained from *Guide to the National Science Foundation's Surveys of Academic Science and Engineering,* December 1987, published by the National Science Foundation, or by contacting

Science and Engineering Education Sector Studies Group
Division of Science Resources Studies
National Science Foundation, Room L-602
Washington, DC 20550

Office for Civil Rights
U.S. Department of Education

The Office for Civil Rights (OCR) in the U.S. Department of Education conducts periodic surveys of elementary and secondary schools to obtain data on the characteristics of students enrolled in public schools throughout the Nation. Racial/ethnic status, gender, limited English proficiency, and handicapping conditions are among the characteristics covered by recent surveys. Such information is required by OCR to fulfill its responsibilities under Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and section 504 of the Rehabilitation Act of 1973. The 1976 survey was a complete census of public school districts in the Nation. The 1984 and 1986 surveys were based on samples. The universe, from which the districts were to be sampled, was defined to be all public schools in the Nation (50 States and the District of Columbia). A universe file maintained by the National Center for Education Statistics from its Common Core of Data was used. The selection factors used in selecting the sample were: minimum percent coverage of a specific population variable, and maximum percent standard deviation of a projection of a population variable from the sample to the universe total.

Stratification also included district size and State. The 1984 survey was a stratified random sample of approximately 3,500 school districts, representing approximately

34,000 schools. For 1986, the sample included 3,455 districts, containing 37,313 schools. Both the 1984 and 1986 surveys are subject to sampling and nonsampling errors.

For further information about these surveys contact

Survey Branch
Office for Civil Rights
U.S. Department of Education
Washington, DC 20202

Office of Special Education and Rehabilitative Services
U.S. Department of Education

Annual Report to Congress on the Implementation of the Education of the Handicapped Act

The Education of the Handicapped Act (EHA) requires the Secretary of Education to transmit to Congress annually a report describing the progress in serving the Nation's handicapped children. The annual report contains information on such children served by the public schools under the provisions of Part B of the EHA and for children served in State operated programs (SOP) for the handicapped under Chapter I of the Education Consolidation and Improvement Act (ECIA). Statistics on children receiving special education and related services in various settings and school personnel providing such services are reported in an annual submission of data to the Office of Special Education and Rehabilitative Services (OSERS) by the 50 States, the District of Columbia, and the outlying areas. The child count information is based on the number of handicapped children receiving special education and related services on December 1st of each year for EHA and October 1st for Chapter I of ECIA/SOP.

Since each participant in programs for the handicapped is reported to OSERS, the data are not subject to sampling error. However, nonsampling error can occur from a variety of sources. Some States follow a noncategorical approach to the delivery of special education services but produce counts by handicapping condition only because EHA–B requires it. In those States that do categorize their handicapped students, definitions and labeling practices vary. In each case, even though States must use the Federal definitions of the handicapping categories for reporting purposes, there is no way to judge the accuracy of these States' relabeling of their students for the Federal count. Some States also have reported combined counts for some of the smaller categories of handicap.

These variations in labeling practices may help explain why there have been inconsistencies both year to year within a given State and from State to State in the ways in which students with more than one handicapping condition have been categorized. However, Federal and State efforts to ensure that children are being classified and reported appropriately and efforts to achieve greater consistency in classification and reporting among States help minimize these variations.

Further information on the Annual Report to Congress may be obtained from

Lou Danielson
Office of Special Education and
  Rehabilitative Services
Office of Special Education Programs
Room 3523, Switzer Building
330 C Street SW
Washington, DC 20202

2. Private Research and Professional Associations

American College Testing Program

The American College Testing (ACT) Assessment is designed to measure educational development in the areas of English, mathematics, social studies, and natural sciences. The ACT Assessment is taken by college-bound high school students and the test results are used to predict how well students might perform in college.

Prior to the 1984–85 school year, national norms were based on a 10 percent sample of the students taking the test. Since then, national norms are based on the test scores of all students taking the test. Moreover, beginning with 1984–85 these norms have been based on the most recent ACT scores available from students scheduled to graduate in the spring of the year. Duplicate test records are no longer used to produce national figures.

Separate ACT standard scores are computed for English, mathematics, social studies, and natural sciences. ACT standard scores are reported for each subject area on a scale from 1 to 36. The four ACT standard scores have a mean (average) of about 19 and a standard deviation of about 6 for college-bound students nationally. A composite score is obtained by taking the simple average of the four standard scores and is an indication of student's overall academic development across these subject areas.

It should be noted that college-bound students who take the ACT Assessment are not representative in some respects of college-bound students nationally. First, students who live in the Midwest, Rocky Mountains and Plains, and the South are overrepresented among ACT-tested students as compared to college-bound students nationally. Second, ACT-tested students tend to enroll in public colleges and universities more frequently than do college-bound students nationally.

For further information, contact

The American College Testing Program
2201 North Dodge Street
P.O. Box 168
Iowa City, IA 52243

College Entrance Examination Board

The Admissions Testing Program of the College Board is made up of a number of college admissions tests, including the Preliminary Scholastic Aptitude Test (PSAT) and the Scholastic Aptitude Test (SAT). High school students participate in the testing program as sophomores, juniors, or seniors—some more than once during these 3 years. If they have taken the tests more than once, only the most recent scores are tabulated. The PSAT and SAT report subscores in the areas of mathematics and verbal ability.

The SAT results are not representative of high school students or college-bound students nationally since the sample is self-selected. Generally, tests are taken by students who need the results to apply to a particular college or university.

The State totals are greatly affected by the requirements of its State colleges. Public colleges in a number of States require ACT scores rather than SAT scores. Thus, the proportion of students taking the SAT in these States is very low and is inappropriate for any comparison. In recent years about 1 million high school students have taken the examination annually.

Further information on the SAT can be obtained from

College Entrance Examination Board
Educational Testing Service
Princeton, NJ 08541

Council of Chief State School Officers (CCSSO)

1988 Policies and Practices Questionnaire

Annually, the CCSSO surveys each of the Chief State School Officers to obtain information about current education practices and policies. Among these are questions relating to current State requirements for graduation and testing requirements for admission to teacher preparation programs and for certification. After these questionnaires are returned to the CCSSO staff, the responses are tabulated and the tabulated material is returned to the individual States for checking. This is done at least twice. Therefore, the data are not subject to sampling error, but there is the small possibility that an individual may have overlooked some State policy or practice.

For further information on this survey contact

Dr. Ramsay Selden
Council of Chief State School Officers
440 North Capitol Street
Washington, DC 20001

Education Commission of the States

The Education Commission of the States (ECS) Clearinghouse researches and collects data on laws and standards in the field of education and reports them periodically in "Clearinghouse Notes." They collect information about administrators, principals, and teachers. They also examine policy areas, such as assessment and testing, collective bargaining, early childhood issues, quality education, and school schedules. The information is collected by reading State newsletters, tracking State legislation, and surveying the State Education Agencies. Data are verified by the individual States when necessary. Even though ECS monitors State activity on a continuous basis, they update the data only when there is significant change in State activity.

Further information is available from

Melody Bush or Chris Pipho
Education Commission of the States
1860 Lincoln Street, Suite 300
Denver, CO 80295

Gallup Poll

Each year the Gallup Poll conducts the "Public Attitudes Toward the Public Schools" survey, funded by Phi Delta Kappa. The survey includes interviews with approximately 1,600 adults representing the civilian noninstitutional population 18 years old and older.

The sample used in the 20th annual survey was made up of a total of 2,118 respondents and is described as a modified probability sample of the Nation. Personal, in-home interviewing was conducted in representative areas of the Nation and types of communities. Approximately 70 percent of the respondents had no children in school, 27 percent were parents of children in public schools, and 8 percent had children attending nonpublic schools. This total is greater than 100 percent because some parents had children attending both public and nonpublic schools. The survey is a sample survey and is subject to sampling error. The size of error depends largely on the number of respondents providing data. For example, an estimated percentage of about 10 percent based on the responses of 1,000 sample members has an approximate sampling error of 2 percent at the 95 percent confidence level. The sampling error for the difference in two percentages (50 percent versus 41 percent) based on two samples of 750 members and 400 members, respectively, is about 8 percent.

Further information on this survey can be obtained from

Gallup Poll
Phi Delta Kappa
P.O. Box 789
Bloomington, IN 47402–0789

National Education Association

Estimates of School Statistics

The National Education Association (NEA) reports revenues and expenditure data in its annual publication, *Estimates of School Statistics*. Each year NEA prepares regression-based estimates of financial and other education statistics and submits them to the States for verification. Generally, about 30 States adjust these estimates based on their own data. These preliminary data are published by NEA along with revised data from previous years. States are asked to revise previously submitted data as final figures become available. The most recent publication contains all changes reported to the NEA.

Some tables in *The Condition of Education* use revised estimates of financial data prepared by NEA, because they were the most current. Since expenditure data reported to NCES must be certified for use in Department of Education formula grant programs (such as Chapter I of the Education Consolidation and Improvement Act), NCES data are not available as soon as NEA estimates.

Further information can be obtained from

National Education Association—Research
1201 16th Street NW
Washington, DC 20036

National Research Council

Survey of Earned Doctorates

The Survey of Earned Doctorates (SED) has been conducted annually by the National Research Council, under contract, for the U.S. Department of Education, the National Endowment for the Humanities, the National Science Foundation, and other Federal agencies since 1957. Information from the survey becomes part of the Doctorate Records File, which includes records for doctorates awarded since 1920 by regionally accredited universities and colleges. The universe consists of all recipients of doctoral degrees such as Ph.D. or D.Sc., but excludes the recipients of first-professional degrees (such as the J.D. or M.D.). Approximately 95 percent of the annual cohort of doctorate recipients have responded to the questionnaire which is distributed through the cooperation of the Graduate Deans. Partial data from public sources are added to the file for nonrespondents. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year.

Data for the SED are collected directly from individual doctorate recipients. In addition to the field and specialty of the degree, the recipient is asked to provide educational history, selected demographic data, and information on postgraduate work and study plans. The National Center for Education Statistics' survey of earned degrees, part of its Higher Education General Information Survey (HEGIS), collects data from institutions, not individuals. Therefore, the number of doctorates reported in SED differs slightly from HEGIS totals. Also, SED data are restricted to research doctorates. The differences between the two data series have been generally consistent since 1960. The ratio of NCES/SED totals for all Ph.D.s has ranged from 1.01 to 1.06.

Further information on this survey can be obtained from *Summary Report: Doctorate Recipients from United States Universities,* various years, published by the National Research Council, or by contacting

Office of Scientific and Engineering Personnel
National Research Council
2101 Constitution Avenue NW
Washington, DC 20418

C. Glossary

Glossary

Academic support: Expenditures for support services that are an integral part of the college's primary missions of instruction, research, or public service. Includes expenditures for libraries, galleries, audio/visual services, academic computing support, ancillary support, academic administration, personnel development, and course and curriculum development.

Agriculture: Courses designed to improve competencies in agricultural occupations. Included is the study of agricultural production, supplies, mechanization and products, agricultural science, forestry, and related services.

American College Testing Program (ACT): Assessment program that measures educational development and readiness to pursue college-level coursework in English, mathematics, natural science, and social studies.

Appropriation (institutional revenues): Amount (other than a grant or contract) received from or made available to an institution through an act of a legislative body.

Associate degree: Degree granted for the successful completion of a below-baccalaureate program of studies, usually requiring at least 2 years (or equivalent) of full-time, college-level study. This includes degrees granted in a cooperative or work/study program.

Auxiliary enterprises: Those essentially self-supporting operations that exist to furnish a service to students, faculty, or staff, and that charge a fee directly related to, although not necessarily equal to, the cost of the service. Examples are residence halls, food services, college stores, and intercollegiate athletics.

Average daily attendance (ADA): Aggregate attendance of a school during a reporting period (normally a school year) divided by the number of days school is in session during this period. Only days on which the pupils are under the guidance and direction of teachers should be considered days in session.

Average daily membership (ADM): Aggregate membership of a school during a reporting period (normally a school year) divided by the number of days school is in session during this period. Only days on which the pupils are under the guidance and direction of teachers should be considered as days in session. The average daily membership for groups of schools having varying lengths of terms is the average of the average daily memberships obtained for the individual schools.

Bachelor's degree: Degree granted for the successful completion of a baccalaureate program of studies, usually requiring at least 4 years (or equivalent) of full-time, college-level study. This includes degrees granted in a cooperative or work/study program.

Business and management: Instructional programs that describe the processes of purchasing, selling, producing, and interchanging of goods, commodities, and services in profit-making and nonprofit public and private institutions and agencies.

Carnegie unit: A standard of measurement that represents one credit for the completion of a 1-year course.

Catholic school: (See orientation)

Class size: Membership of a class at a given date.

Cohort: Group of individuals who have a statistical factor in common, for example, year of birth.

College: A postsecondary school that offers general or liberal arts education, usually leading to an associate, bachelor's, master's, doctor's, or first-professional degree. Junior colleges and community colleges are included under this terminology.

Combined elementary and secondary school: School that encompasses instruction at both the elementary and the secondary levels. Examples of combined elementary and secondary school grade spans would be grades 1 through 12 or grades 5 through 12.

Computer and information sciences: Group of instructional programs that describes computer and information sciences, including computer programming, data processing, and information systems.

Constant dollars: Dollar amounts that have been adjusted by means of price and cost indices to eliminate inflationary factors and allow direct comparison across years.

Control of institutions: Classification of institutions of higher education by whether the institution is operated by publicly elected or appointed officials (public control) or by privately elected or appointed officials and derives its major source of funds from private sources (private control).

Consumer, personal, and miscellaneous services: Group of instructional programs that describes the fundamental skills a person is normally thought to need in order to function productively in society. Some examples are child development, consumer education, and family relations.

Consumer Price Index (CPI): Price index that measures the average change in the cost of a fixed market basket of goods and services purchased by consumers.

Current dollars: Dollar amounts that have not been adjusted to compensate for inflation.

Current expenditures (elementary/secondary): Expenditures for operating local public schools excluding capital outlay and interest on school debt. These expenditures include such items as salaries for school personnel, fixed charges, student transportation, school books and materials, and energy costs. Beginning in 1980–81, expenditures for State administration are excluded.

Current expenditures per pupil in average daily attendance: Current expenditures for the regular school term divided by the average daily attendance of full-time pupils (or full-time-equivalency of pupils) during the term. See also current expenditures and average daily attendance.

Current-fund expenditures (higher education): Money spent to meet current operating costs, including salaries, wages, utilities, student services, public services, research libraries, scholarships and fellowships, auxiliary enterprises, hospitals, and independent operations. Excludes loans, capital expenditures, and investments.

Current-fund revenues (higher education): Money received during the current fiscal year from revenue that can be used to pay obligations currently due and surpluses reappropriated for the current fiscal year.

Doctor's degree: Earned degree carrying the title of Doctor. The Doctor of Philosophy degree (Ph.D.) is the highest academic degree and requires mastery within a field of knowledge and demonstrated ability to perform scholarly research. Other doctorates are awarded for fulfilling specialized requirements in professional fields, such as education (Ed.D.), musical arts (D.M.A.), business administration (D.B.A.), and engineering (D.Eng. or D.E.S.). Many doctor's degrees in both academic and professional fields require an earned master's degree as a prerequisite. First-professional degrees, such as M.D. and D.D.S., are not included under this heading.

Educational attainment: Highest grade of regular school attended and completed.

Educational and general expenditures: The sum of current funds expenditures on instruction, research, public service, academic support, student services, institutional support, operation and maintenance of plant, and awards from restricted and unrestricted funds.

Elementary school: School classified as elementary by State and local practice and composed of any span of grades not above grade 8. A preschool or kindergarten is included under this heading only if it is an integral part of an elementary school or a regularly established school system.

Elementary/secondary school: As reported in this publication, includes only regular school, that is, schools that are part of State and local school systems, and also most nonprofit private elementary/secondary schools, both religiously affiliated and nonsectarian. Schools not reported include subcollegiate departments of institutions of higher education, residential schools for exceptional children, Federal schools for Indians, and Federal schools on military posts and other Federal installations.

Engineering and engineering technologies: Instructional programs that describe the mathematical and natural sciences gained by study, experience, and practice and applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. Includes programs that prepare individuals to support and assist engineers and similar professionals.

English: A group of instructional programs that describes the English language arts, including composition, creative writing, and the study of literature.

Enrollment: Total number of students registered in a given school unit at a given time, generally in the fall of a year.

Expenditures: Charges incurred, whether paid or unpaid, that are presumed to benefit the current fiscal year. For elementary/secondary schools, these include all charges for current outlays plus capital outlays and interest on school debt. For institutions of higher education, these include current outlays plus capital outlays. For government, these include charges net of recoveries and other correcting transactions other than for retirement of debt, investment in securities, extension of credit, or as agency transaction. Government expenditures include only external transactions, such as the provision of perquisites or other payments in kind. Aggregates for groups of governments exclude intergovernmental transactions among the governments.

Expenditures per pupil: Charges incurred for a particular period of time divided by a student unit of measure, such as average daily attendance or average daily membership.

First-professional degree: Degree that signifies both completion of the academic requirements for beginning practice in a given profession and a level of professional skill beyond that normally required for a bachelor's degree. This degree usually is based on a program requiring at least 2 academic years of work prior to entrance and a total of at least 6 academic years of work to complete the degree program, including both prior-required college work and the professional program itself. By NCES definition, first-professional degrees are awarded in the fields of dentistry (D.D.S or D.M.D.), medicine (M.D.), optometry (O.D.), osteopathic medicine (D.O.), pharmacy (D.Phar.), podiatric medicine (D.P.M.), veterinary medicine (D.V.M.), chiropractic (D.C. or D.C.M.), law (J.D.), and theological professions (M.Div. or M.H.L.).

Fiscal year: The yearly accounting period for the Federal Government that begins on October 1 and ends on the following September 30. The fiscal year is designated by the calendar year in which it ends; for example, fiscal year 1988 begins on October 1, 1987, and ends on September 30, 1988. (From fiscal year 1844 to fiscal year 1976 the fiscal year began on July 1 and ended on the following June 30.)

Foreign languages: Group of instructional programs that describes the structure and use of language that is common or indigenous to people of the same community or nation, the same geographical area, or the same cultural traditions. Programs cover such features as sound, literature, syntax, phonology, semantics, sentences, prose, and verse, as well as the development of skills and attitudes used in communicating and evaluating thoughts and feelings through oral and written language.

Full-time enrollment: The number of students enrolled in higher education courses with total credit load equal to at least 75 percent of the normal full-time course load.

Full-time-equivalent (FTE) enrollment: For institutions of higher education, enrollment of full-time students, plus the full-time equivalent of part-time students as reported by institutions. In the absence of an equivalent reported by an institution, the FTE enrollment is estimated by adding one-third of part-time enrollment to full-time enrollment.

Full-time instructional faculty: Those members of the instruction/research staff who are employed full time as defined by the institution, including faculty with released time for research and faculty on sabbatical leave. Full-time counts exclude faculty who are employed to teach less than two semesters, three quarters, two trimesters, or two 4-month sessions; replacements for faculty on sabbatical leave or those on leave without pay; faculty for preclinical and clinical medicine; faculty who are donating their services; faculty who are members of military organizations and paid on a different pay scale from civilian employees; academic officers whose primary duties are administrative; and graduate students who assist in the instruction of courses.

Full-time worker: In educational institutions, an employee whose position requires being on the job on school days throughout the school year at least the number of hours the schools are in session. For higher education, a member of an educational institution's staff who is employed full time.

General Educational Development (GED) Test: Test administered by the American Council on Education as the basis for awarding high school equivalent certification.

General program: Program of studies designed to prepare students for the common activities of a citizen, family member, and worker. A general program of studies may include instruction in both academic and vocational areas.

Geographic region: One of four regions used by the Bureau of the Economic Analysis of the U.S. Department of Commerce, the National Assessment of Educational

Progress (NAEP), and the National Education Association (NEA), to designate different parts of the country:

Northeast

Connecticut
Delaware
District of Columbia
Maine
Maryland
Massachusetts
New Hampshire
New Jersey
New York
Pennsylvania
Rhode Island
Vermont

Central (Middle)*

Illinois
Indiana
Iowa
Kansas
Michigan
Minnesota
Missouri
Nebraska
North Dakota
Ohio
South Dakota
Wisconsin

Southeast

Alabama
Arkansas
Florida
Georgia
Kentucky
Louisiana
Mississippi
North Carolina
South Carolina
Tennessee
Virginia
West Virginia

West

Alaska
Arizona
California
Colorado
Hawaii
Idaho
Montana
Nevada
New Mexico
Oklahoma
Oregon
Texas
Utah
Washington
Wyoming

* NEA Classification.

Government appropriation: Amount (other than a grant or contract) received from or made available to an institution through an act of a legislative body.

Government grant or contract: Revenues from a government agency for a specific research project or other program.

Graduate enrollment: The number of students who hold the bachelor's or first-professional degree, or the equivalent, and who are working towards a master's or doctor's degree. First-professional students are counted separately. These enrollment data measure those students who are registered at a particular time during the fall. At some institutions, graduate enrollment also includes students who are in postbaccalaureate classes but not in degree programs.

Graduate Record Examination (GRE): Multiple-choice examinations administered by the Educational Testing Service and taken by college students who are intending to attend certain graduate schools. The tests are offered in a variety of subject areas. Ordinarily, a student will take only the exam that applies to the intended field of study.

Graduate student: A student who holds a bachelor's or first-professional degree, or equivalent, and is taking courses at the postbaccalaureate level. These students may or may not be enrolled in graduate programs.

Gross National Product (GNP): The total national output of goods and services valued at market prices. GNP can be viewed in terms of expenditure categories that include purchases of goods and services by consumers and government, gross private domestic investment, and net exports of goods and services. The goods and services included are largely those bought for final use (excluding illegal transactions) in the market economy. A number of inclusions, however, represent imputed values, the most important of which is rental value of owner-occupied housing. GNP, in this broad context, measures the output attributable to the factors of production — labor and property — supplied by U.S. residents.

Handicapped: Those children evaluated by the States as having any of the following impairments, who because of these impairments need special education and related services. (The following definitions apply specifically to data from the U.S. Office of Special Education and Rehabilitative Services presented in this publication.)

Deaf: Having a hearing impairment that is so severe that the student is impaired in processing linguistic information through hearing (with or without amplification) and which adversely affects educational performance.

Deaf-blind: Having concomitant hearing and visual impairments that cause such severe communication and other developmental and educational problems that the student cannot be accommodated in special education programs solely for deaf or blind students.

Hard of hearing: Having a hearing impairment, whether permanent or fluctuating, that adversely affects the student's educational performance but that is not included under the definition of "deaf" in this section.

Mentally retarded: Having significantly below average general intellectual functioning, existing concurrently with defects in adaptive behavior and manifested during the developmental period, that adversely affects the child's educational performance.

Multihandicapped: Having concomitant impairments (such as mentally retarded-blind, mentally retarded-orthopedically impaired, etc.), the combination of which causes such severe educational problems that the student cannot be accommodated in special education programs solely for one of the impairments. Term does not include deaf-blind students but does include those students who are severely or profoundly mentally retarded.

Orthopedically impaired: Having a severe orthopedic impairment that adversely affects a student's educational performance. The term includes impairment resulting from congenital anomaly, disease, or other causes.

Other health impaired: Having limited strength, vitality, or alertness due to chronic or acute health problems such as a heart condition, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, or diabetes, that adversely affects the student's educational performance.

Seriously emotionally disturbed: Exhibiting one or more of the following characteristics over a long period of time, to a marked degree, and adversely affecting educational performance: an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behavior or feelings under normal circumstances; a general, pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal or school problems. This term does not include children who are socially maladjusted, unless they also display one or more of the listed characteristics.

Specific learning disabled: Having a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental asphasia. The term does not include children who have learning problems that are primarily the result of visual, hearing, or environmental, cultural, or economic disadvantage.

Speech impaired: Having a communication disorder, such as stuttering, impaired articulation, language impairment, or voice impairment, that adversely affects the student's educational performance.

Visually handicapped: Having a visual impairment that, even with correction, adversely affects the student's educational performance. The term includes partially seeing and blind children.

Higher education: Study beyond secondary school at an institution that offers programs terminating in an associate, bachelor's, or higher degree.

Higher education institutions (general definition): Institutions providing education above the instructional level of the secondary schools, usually beginning with grade 13. Typically, these institutions include colleges, universities, graduate schools, professional schools, and other degree-granting institutions.

Higher education institutions (traditional classification):

4-year institution: An institution legally authorized to offer and offering at least a 4-year program of college-level studies wholly or principally creditable toward a baccalaureate degree. In some tables a further division between universities and other 4-year institutions is made. A "university" is a postsecondary institution that is typically made up of one or more graduate professional schools (see also university).

2-year institution: An institution legally authorized to offer and offering at least a 2-year program of college-level studies that terminates in an associate degree or is principally creditable toward a bachelor's degree.

High school: A secondary school offering the final years of high school work necessary for graduation, usually including grades 10, 11, 12 (in a 6–3–3 plan) or grades 9, 10, 11, and 12 (in a 6–2–4 plan).

High school program: Program of studies designed to prepare students for their postsecondary education and occupation. Three types of programs are usually distinguished: academic, vocational, and general. An academic program is designed to prepare students for continued study at a college or university. A vocational program is designed to prepare students for employment in one or more semiskilled, skilled, or technical occupations. A general program is designed to provide students with the understanding and competence to function effectively in a free society and usually represents a mixture of academic and vocational components.

Humanities: Instructional programs in the following fields: area and ethnic studies, foreign languages, letters, liberal/general studies, multi/interdisciplinary studies, philosophy and religion, theology, and the visual and performing arts.

Independent operations: Group of self-supporting activities under control of a college or university. For purposes of financial surveys conducted by the National Center for Education Statistics, this category is composed principally of Federally Funded Research and Development Centers (FFRDC).

Inflation: Upward movement in general price levels that results in a decline of purchasing power.

Institutional support: Category of higher education expenditures that includes day-to-day operational support for colleges, excluding expenditures for physical plant operations. Examples of institutional support include general administrative services, executive direction and planning, legal and fiscal operations, and community relations.

Instructional support: Category of expenditures of the colleges, schools, departments, and other instructional divisions of higher education institutions and of expenditures for departmental research and public service that are not separately budgeted. Includes expenditures for both credit and noncredit activities. Excludes expenditures for academic administration where the primary function is administration (e.g., academic deans).

Instructional staff: Full-time-equivalent number of positions, not the number of different individuals occupying the positions during the school year. In local schools includes all public elementary and secondary (junior and senior high) day-school positions that are in the nature of teaching or in the improvement of the teaching/learning situation. Includes consultants or supervisors of instruction, principals, teachers, guidance personnel, librarians, psychological personnel, and other instructional staff. Excludes administrative staff, attendance personnel, clerical personnel, and junior college staff.

Junior high school: Separately organized and administered secondary school that is between the elementary and senior high schools, usually including grades 7, 8, and 9 (in a 6–3–3 plan) or grades 7 and 8 (in a 6–2–4 plan).

Labor force: Persons employed as civilians, unemployed, or in the armed services during the survey week. All civilians classified as employed or unemployed comprise the "civilian labor force."

Local education agency: See school district.

Mandatory transfer: Transfer of current funds that must be made in order to fulfill a binding legal obligation of the institution. Included under mandatory transfers are debt service provisions relating to academic and administrative buildings, including (1) amounts set aside for debt retirement and interest and (2) required provisions for renewal and replacement of buildings to the extent these are not financed from other funds.

Master's degree: Degree awarded for successful completion of a program generally requiring 1 or 2 years of full-time, college-level study beyond the bachelor's degree. One type of master's degree, either the Master of Arts (M.A.) or Master of Science (M.S.), is awarded in the liberal arts and sciences for advanced scholarship in a subject, field, or discipline and for demonstrated ability to perform scholarly research. A second type of master's degree is awarded for the completion of a professionally oriented program, for example, an M.Ed. in education, an M.B.A. in business administration, an M.F.A. in fine arts, an M.M. in music, an M.S.W. in social work, and an M.P.A. in public administration. A third type of master's degree is awarded in professional fields for study beyond the first-professional degree, for example, the Master of Laws (LL.M.) and Master of Science in various medical specializations.

Mathematics: Group of instructional programs that describes the science of logical symbolic language and its application.

Metropolitan population: Population residing in Metropolitan Statistical Areas (MSAs). See Metropolitan Statistical Area.

Metropolitan Statistical Area (MSA): Large population nucleus and the nearby communities that are economically and socially integrated with that nucleus. Each MSA consists of one or more entire counties (or county equivalents) that meet specified standards pertaining to population, commuting ties, and metropolitan character. In New England, towns and cities, rather than counties, are the basic units. MSAs are designated by the Office of Management and Budget. An MSA includes a city and, generally, its entire urban area and the remainder of the county or counties in which that urban area is located. An MSA also includes such additional outlying counties that meet specified criteria relating to metropolitan character and level of commuting of workers into the central city or counties. Specified criteria governing the definition of MSAs recognized before 1980 are published in *Standard Metropolitan Statistical Areas: 1975,* issued by the Office of Management and Budget.

New MSAs were designated when 1980 counts showed that they met one or both of the following criteria:

- Include a city with a population of at least 50,000 within the corporate limits, or
- Include a Census Bureau-defined urban area (that must have a population of at least 50,000) and a total MSA population of at least 100,000 (or, in New England, 75,000).

Minimum-competency testing: Measuring the acquisition of competence or skills to or beyond a certain specified standard.

Natural sciences: Group of fields of study that includes the life sciences, physical sciences, and mathematics.

Nonmetropolitan residence group: Population residing outside Metropolitan Statistical Areas. See Metropolitan Statistical Area.

Nonresident alien: Person who is not a citizen of the United States and who is in the United States temporarily and does not have the right to remain indefinitely.

Nonsupervisory instructional staff: Persons such as curriculum specialists, counselors, librarians, remedial specialists, and others possessing education certification but not responsible for day-to-day teaching of the same group of pupils.

Orientation (private school): Group or groups, if any, with which a private elementary/secondary school is affiliated or from which it derives subsidy or support:

Catholic school: Private school over which a Roman Catholic church group exercises some control or provides some form of subsidy. Catholic schools for the most part include those operated or supported by a parish, a group of parishes, a diocese, or a Catholic religious order.

Other religious school: Private school affiliated with an organized religion or denomination other than Roman Catholicism or that has a religious orientation other than Catholic to its operation and curriculum.

Nonsectarian school: Private school whose curriculum and operation are independent of religious orientation and influence in all but incidental ways.

Part-time enrollment Number of students enrolled in higher education courses with a total credit load less the 75 percent of the normal full-time credit load.

Personal income: Current income received by persons from all sources minus their personal contributions for social insurance. "Persons" are individuals (including owners of unincorporated firms), nonprofit institutions serving individuals, private trust funds, and private, noninsured welfare funds. Personal income includes transfers (payments not resulting from current production) from government and business such as social security benefits or military pensions, but excludes transfers among persons.

Physical and life sciences: Instructional programs that describe inanimate objects, processes, or matter, energy, and associated phenomena. Physical sciences include astronomy, astrophysics, atmospheric sciences, chemistry, geology, physics, planetary science, and science technologies. Life sciences are instructional programs that describe the systematic study of living organisms. Life sciences include biology, biochemstry, biophysics, and zoology. (See also science.)

Postsecondary education: Formal instructional programs with a curriculum designed primarily for students who have completed the requirements for a high school diploma or equivalent; includes academic, vocational, and continuing professional education programs but excludes avocational and adult basic education programs.

Private school or institution: School or institution that is controlled by an individual or agency other than a State, a subdivision of a State, or the Federal Government, that is usually supported primarily by other than public funds and operated by other than publicly elected or appointed officials.

Proprietary institution: Educational institution that is under private control but whose profits derive from revenues subject to taxation.

Public school or institution: School or institution controlled and operated by publicly elected or appointed officials and deriving its primary support from public funds.

Pupil/teacher ratio: Enrollment of pupils at a given period of time, divided by the full-time-equivalent number of classroom teachers serving these pupils during the same period.

Racial/ethnic group: Classification indicating general racial or ethnic heritage based on self-identification, as in data collected by the Bureau of the Census, or on observer identification, as in data collected by the Office for Civil Rights. These categories are in accordance with the Office of Management and Budget's standard classification scheme presented below:

> **White:** Person having origins in any of the original peoples of Europe, North Africa, or the Middle East. Normally excludes persons of Hispanic origin except for tabulations produced by the Bureau of the Census, which are noted accordingly in this volume.
>
> **Black:** Person having origins in any of the black racial groups in Africa. Normally excludes persons of Hispanic origin except for tabulations produced by the Bureau of the Census, which are noted accordingly in this volume.
>
> **Hispanic:** Person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
>
> **Asian or Pacific Islander:** Person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa.

American Indian or Alaskan Native: A person having origins in any of the original peoples of North America and maintaining cultural identification through tribal affiliation or community recognition.

Revenues: All funds received from external sources, net of refunds, and correcting transactions. Noncash transactions such as receipt of services, commodities, or other receipts "in kind" are excluded as are funds received from the issuance of debt, liquidation of investments, and nonroutine sale of property.

Salary: The total amount regularly paid or stipulated to be paid to an individual, before deductions, for personal services rendered while on the payroll of a business or organization.

Scholarships and fellowships: Category of college expenditures that applies only to money given in the form of outright grants and trainee stipends to individuals enrolled in formal coursework, either for credit or not. Aid to students in the form of tuition or fee remissions is included. College Work Study funds are excluded and are reported under the program in which the student is working. In the tabulations in this volume, Pell Grants are not included in this expenditure category.

Scholastic Aptitude Test (SAT): An examination administered by the Educational Testing Service and used to predict the facility with which an individual will progress in learning college-level academic subjects.

School climate: Social system and culture of the school, including the organizational structure of the school and the values and expectations within it.

School district: Education agency at the local level that exists primarily to operate public schools or to contract for public school services. Synonyms are "local basic administrative unit" and "local education agency."

School year: 12-month period of time denoting the beginning and ending dates for school accounting purposes, usually from July 1 through June 30.

Science: Body of related courses concerned with knowledge of the physical and biological world and with the processes of discovering and validating this knowledge.

Secondary school: School composed of any span of grades beginning with the next grade following an elementary or middle-school (usually 7, 8, or 9) and ending with or below grade 12. Both junior high schools and senior high schools are included.

Senior high school: Secondary school offering the final years of high school work necessary for graduation and invariably preceded by junior high school.

Social and behavioral sciences: A group of scientific fields of study that includes anthropology, archeology, criminology, demography, economics, geography, history, international relations, psychology, sociology, and urban studies.

Social studies: Group of instructional programs that describes the substantive portions of behavior, past and present activities, interactions, and organizations of people associated for religious, benevolent, cultural, scientific, political, patriotic, or other purposes.

Staff assignments, elementary and secondary school:

District administrators: Chief executive officers (such as superintendents and deputies) of education agencies and all others with districtwide responsibility. Such positions may be business managers, administrative assistants, coordinators, and the like.

District administrative support staff: Personnel who are assigned to the staffs of the district administrators. They may be clerks, computers programmers, and others concerned with the functioning of the entire district.

Guidance counselors: Professional staff whose activities involve counseling students and parents, consulting with other staff members on learning problems, evaluating the abilities of students, assisting students in personal and social development, providing referral assistance, and working with other staff members in planning and conducting guidance programs for students.

Instructional (teacher) aides: Staff members assigned to assist a teacher with routine activities associated with teaching (those activities requiring minor decisions regarding students, such as monitoring, conducting rote exercises, operating equipment, and clerking). Volunteer aides are not included in this category.

Librarians: Staff members assigned to perform professional library service activities such as selecting, acquiring, preparing, cataloging, and circulating books and other printed materials; planning the use of the library by students, teachers, and other members of the instructional staff; and guiding individuals in their use of library books and materials, that are maintained separately or as part of an instructional materials center.

Other support services staff: All staff not reported in other categories. This group includes media personnel, social workers, data processors, health maintenance workers, bus drivers, security personnel, cafeteria workers, and other staff.

School administrators: Staff members whose activities are concerned with directing and managing the operation of a particular school. They may be principals or assistant principals, including those who coordinate school instructional activities with those of the local education agency (LEA) and other appropriate units.

Technical/professional fields: Group of occupationally-oriented fields of study, other than engineering and computer science, that include agriculture and agricultural sciences, architecture, communications, health sciences, home economics, law, library and archival sciences, military sciences, parks and recreation, protective services, and public affairs.

Trade and industrial occupations: Branch of vocational education that is concerned with preparing persons for initial employment or with updating or retraining workers in a wide range of trade and industrial occupations. Such occupations are skilled or semiskilled and are concerned with designing, producing, processing, assembling, testing, maintaining, servicing, or repairing any product or commodity.

Tuition and fees: Payment or charge for instruction or compensation for services, privileges, or the use of equipment, books, or other goods.

Undergraduate students: Students registered at an institution of higher education who are working in a program leading to a bachelor's degree or other formal award below the bachelor's degree such as an associate degree.

University: Institution of higher education consisting of a liberal arts college, a diverse graduate program, and usually two or more professional schools or faculties and empowered to confer degrees in various fields of study.

Visual and performing arts: Group of instructional programs that generally describes the historic development, aesthetic qualities, and creative processes of two or more of the visual and performing arts.

Vocational education: Organized educational programs, services, and activities that are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career, requiring other than a bachelor's or advanced degree.

Vocational home economics: Vocational courses of instruction emphasizing the acquisition of competencies needed for getting and holding a job or advancing in an occupational area using home economics knowledge or skills.

Year-round, full-time worker: One who worked primarily at full-time civilian jobs for 50 weeks or more during the preceding calendar year.

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